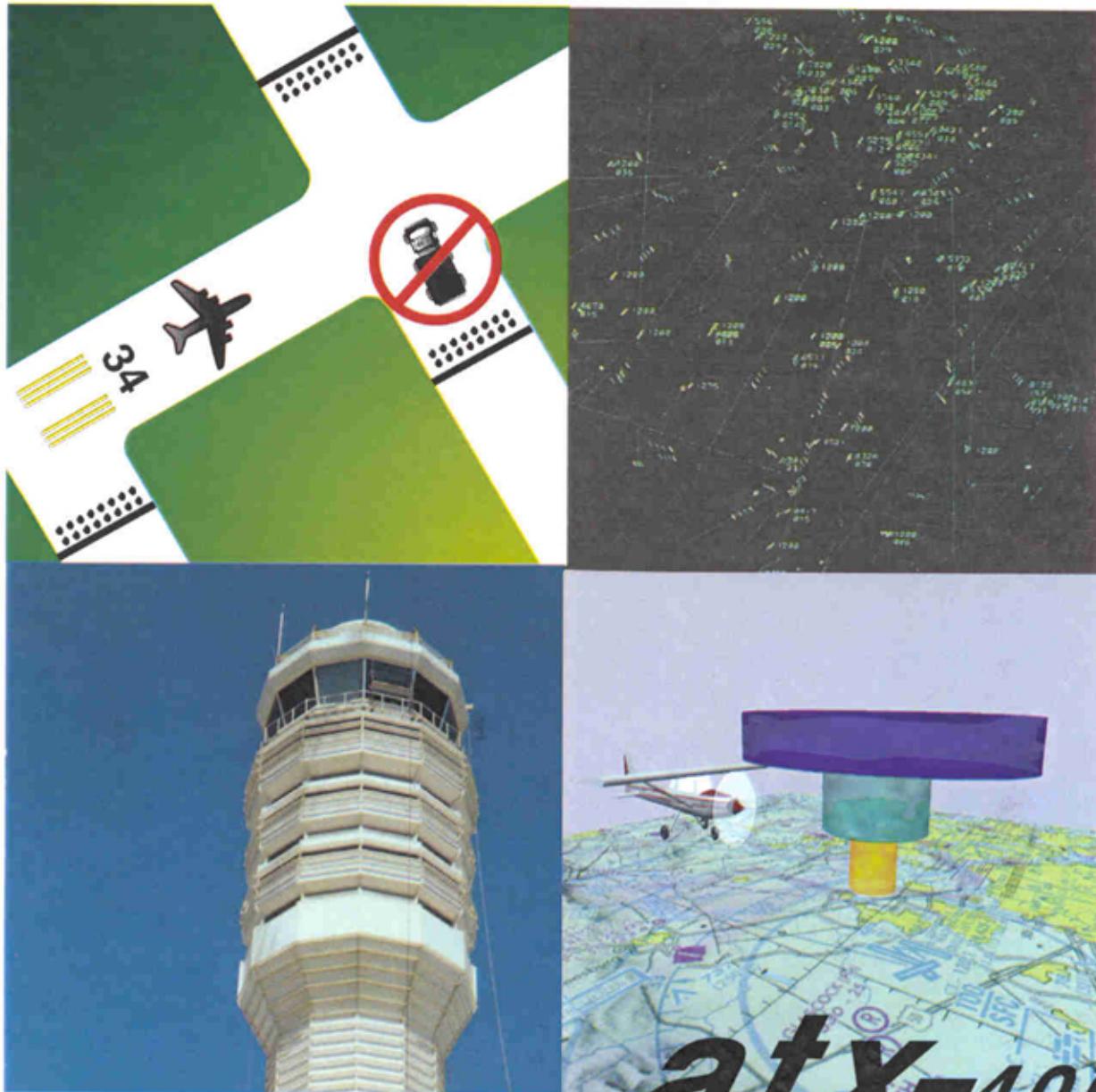




U.S. Department  
of Transportation

Federal Aviation  
Administration

# Aviation Safety Statistical Handbook



**atx-400**

*planning • information • analysis*

1999 Annual Report

Air Traffic Resource Management Program  
Planning, Information and Analysis

## **AVIATION SAFETY STATISTICAL HANDBOOK**

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## **EXECUTIVE SUMMARY**

## **EXECUTIVE SUMMARY**

This, the seventh annual edition of the Aviation Safety Statistical Handbook, contains aviation safety statistical information in tabular and graphical format for national airspace incidents and aircraft accidents. Data are presented for Near Midair Collisions (NMACs), Operational Errors (OEs), Operational Deviations (ODs), Pilot Deviations (PDs), Vehicle/Pedestrian Deviations (VPDs), Surface Incidents (SIs), Runway Incursions (RIs), Flight Assist, and aircraft accidents. Data are predominantly presented for the years 1994 through 1999. Selected historical information is presented prior to 1994, in the appendix. All national airspace incidents have demonstrated a basic upward trend. Specifically, comparing January through December 1998 with January through December 1999, all airspace incidents have increased, with the exception of ODs, which yielded a slight annual decrease of four percent in 1999 from the previous year.

### **NEAR MIDAIR COLLISIONS**

The total number of pilot-reported NMAC incident reports increased 21 percent; rising from 208 incident reports in 1998, to 252 incident reports in 1999. The number of NMAC incident reports generated by commercial air carriers (Part 121 and Part 135) increased 8.6 percent, from 93 to 101 reports. NMAC incident reports generated by General Aviation (Part 91) aircraft increased 27.5 percent, from 69 to 88 reports. Military aircraft reported NMAC incident reports increased 30 percent, from 40 to 52 reports. NMAC incident reports where one aircraft was flying IFR and the other was flying VFR increased 10.3 percent, from 126 to 139 reports. Incident reports where both aircraft were flying VFR, increased 64 percent, from 53 to 87 reports. NMAC incident reports where both aircraft were flying IFR decreased 11.5 percent, dropping from 29 to 26 reports. Approximately 13 percent of all NMACs reported during 1999, represented a critical hazard. Approximately one-half of all reported NMAC incidents, 49 percent, were reported as potential hazards.

### **OPERATIONAL ERRORS/DEVIATIONS**

The total number of OE incident reports increased 11 percent, rising from 894 reports in 1998, to 991 reports in 1999. En route OE reports for this period increased 22 percent, from 510 to 621 reports. OE reports at terminals in 1999 decreased 4 percent, dropping from 384 to 370 reports. In 1999, Air Route Traffic Control Centers (ARTCC's) reported error rates ranging from 0.28 for the Salt Lake City Center, with 4 OE incident reports, to 2.82 for Washington Center, with 75 OE incident reports. This rate is based on error incidents per 100,000 operations. Guam and Honolulu CERAP's did not report any OE incidents during 1999. TRACON rates ranged from zero, where Edwards and Tucson TRACONS did not record any errors in 1999, to 1.40 for New York TRACON, which reported 29 incidents. OD reports decreased 6 percent, dropping from 293 to 276 incident reports.

## **PILOT DEVIATIONS**

The total number of PD incident reports increased 4 percent; rising from 1,591 reports in 1998 to 1,647 reports in 1999. In 1999, PD incidents involving air related violations decreased 5.7 percent, dropping from 1,180 reports to 1,113 reports. Surface related PD incidents increased 20.8 percent, rising from 453 reports in 1998 to 547 reports in 1999. The largest type of airspace violated consistently remains Class B airspace. However, the number of Class B airspace violations showed a significant decrease, dropping 23 percent, from 216 incident reports in 1998 to only 166 incident reports in 1999. The PD causal factor cited most frequently remains "not following ATC instruction." It did decrease 5.3 percent in 1999 with 482 reported occurrences in 1999 versus 509 reported occurrences in 1998.

## **VEHICLE/PEDESTRIAN DEVIATIONS**

The total number of VPD incidents in 1999 showed a significant increase, rising 53 percent from 1998. There were 402 reported incidents in 1999 versus 262 reported incidents in 1998. Merrill Field Airport (MRI) in Alaska recorded the highest number of incidents, with a total of 24 VPD incident reports for 1999. Jeffco Airport (BJC) in Colorado recorded the most significant one-year increase in VPD incident reports for 1999; rising from only 1 report in 1998 to 21 reports in 1999.

## **SURFACE INCIDENTS**

The total number of SI incidents for 1999 increased 27.3 percent; rising from 832 incident reports in 1998, to 1,059 incident reports in 1999. Surface OE incidents showed a decline of 4.2 percent, dropping from 96 to 92 reports. Surface OD incidents decreased 14.3 percent, dropping from 21 reports in 1998 to only 18 in 1999. As previously stated, PD and VPD incident reports yielding an SI count, increased from 1998 to 1999. OD incidents resulting in an SI declined 14 percent, from 21 to 18.

The total number of runway incursions for 1999 decreased 1 percent, from 325 to 321, compared to 1998. Both OED and PD incident reports showed a decrease in the number of incidents resulting in RI events. The VPD incident system yielded the only increase in RI events, rising 16.6 percent, up from 51 events in 1998 to 61 in 1999.

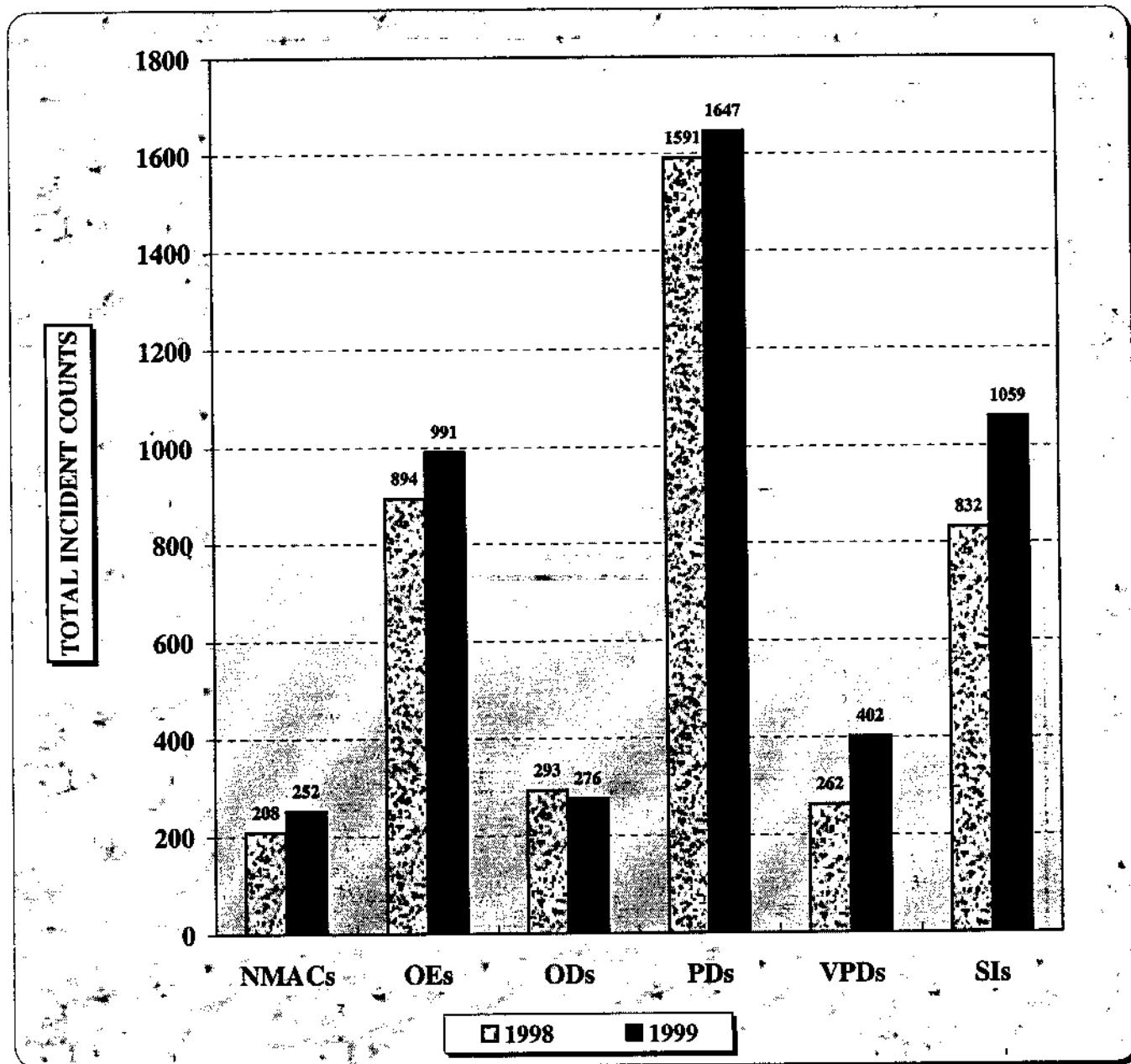
## **FLIGHT ASSISTS**

Flight assists for 1999 decreased 13 percent; down from 558 in 1998 to 484 in 1999. Ninety-three percent of the flight assists handled during 1999 were for general aviation aircraft. A 12-month comparison of flight assists by facility showed that New York TRACON topped the list with 23 assists.

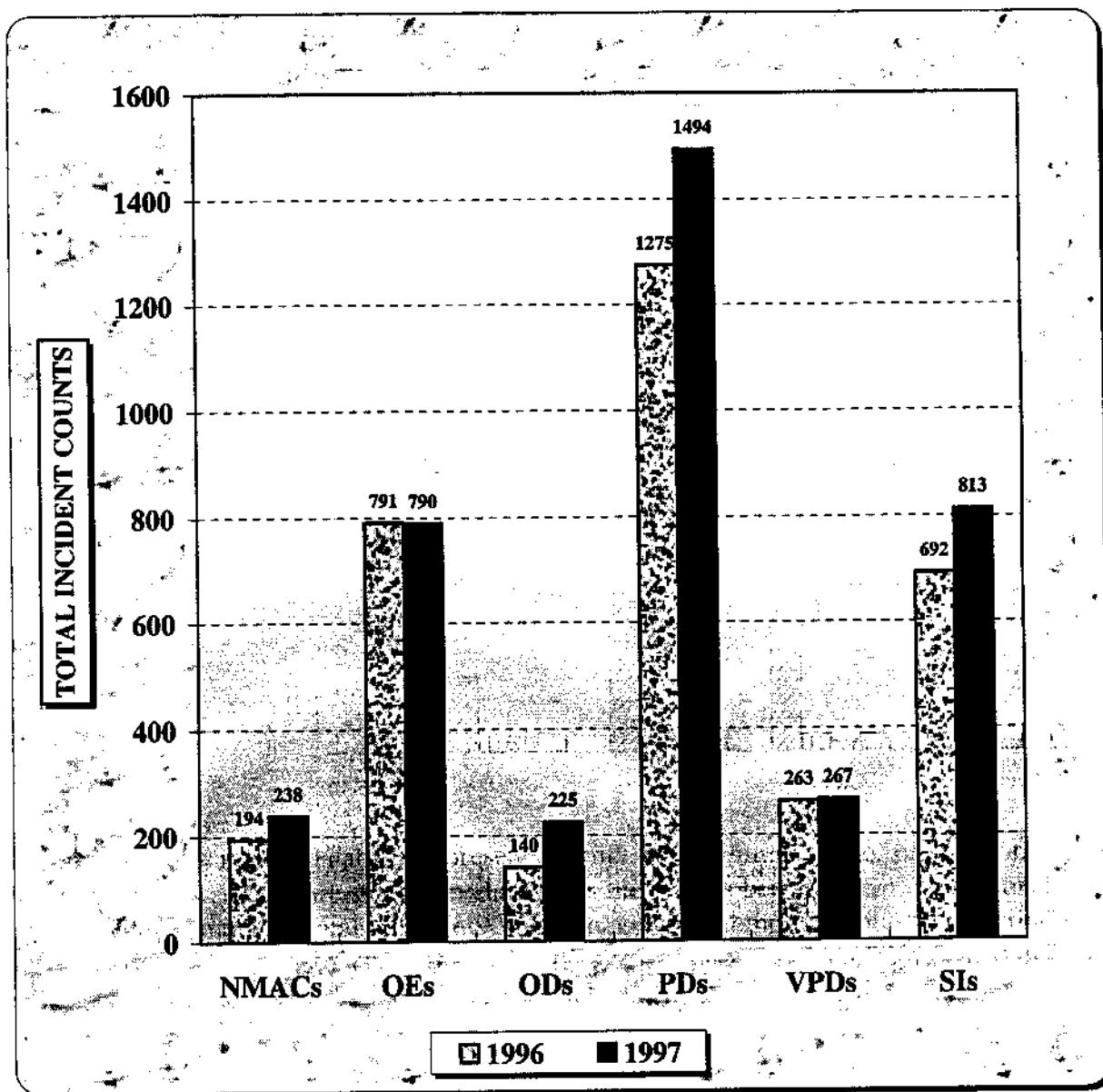
## **ACCIDENT DATA**

Total National Airspace System (NAS) accidents increased slightly from 2,044 accidents during 1998 to 2,049 accidents in 1999. About 93 percent of 1999 accidents occurred in the General Aviation segment (1,908), which dropped slightly from 1,909 in 1998. There were 52 large air carrier accidents in 1999 compared to 50 in 1998. The number of accidents per 100,000 flight hours (accident rate) for the total system decreased from 4.39 to 4.31. The number of fatal accidents decreased 6 percent, from 384 to 361. The corresponding fatal accident rate for the total system decreased from .83 to .76. The total system fatalities increased from 672 to 690.

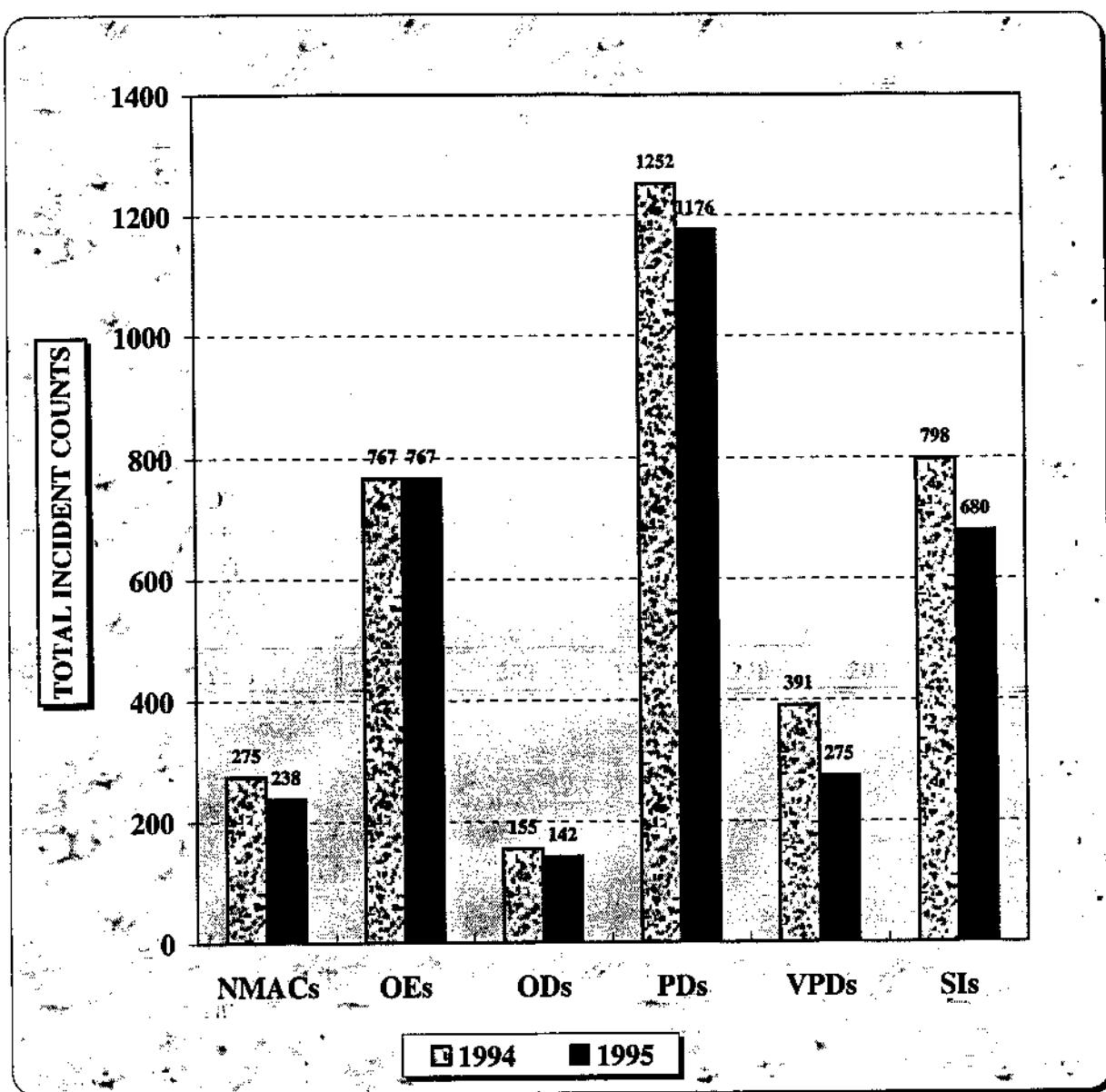
**NATIONAL AIRSPACE INCIDENTS  
CALENDAR YEARS  
1998 and 1999**



**NATIONAL AIRSPACE INCIDENTS  
CALENDAR YEARS  
1996 and 1997**



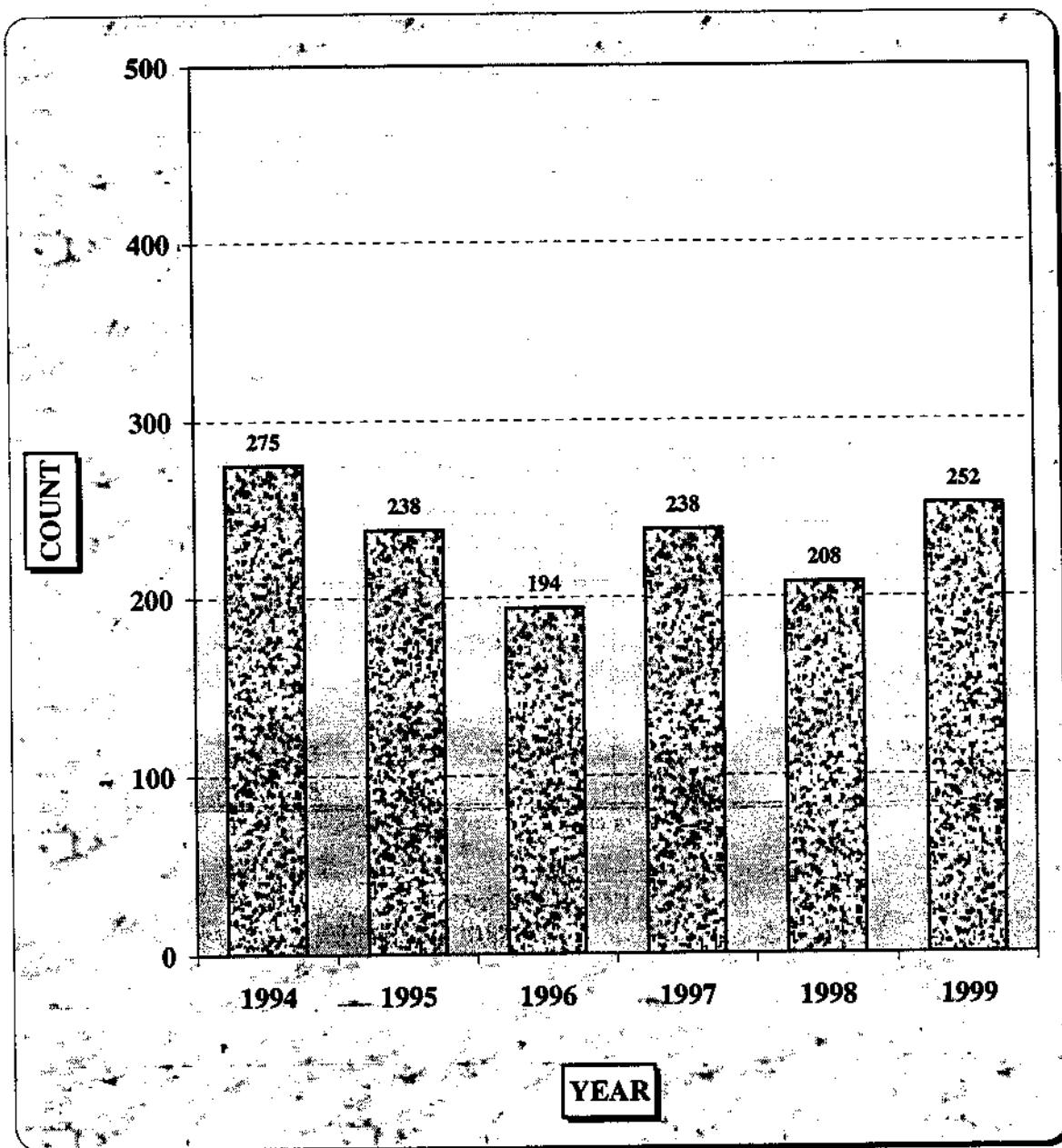
**NATIONAL AIRSPACE INCIDENTS  
CALENDAR YEARS  
1994 and 1995**



## **NEAR MIDAIR COLLISIONS\***

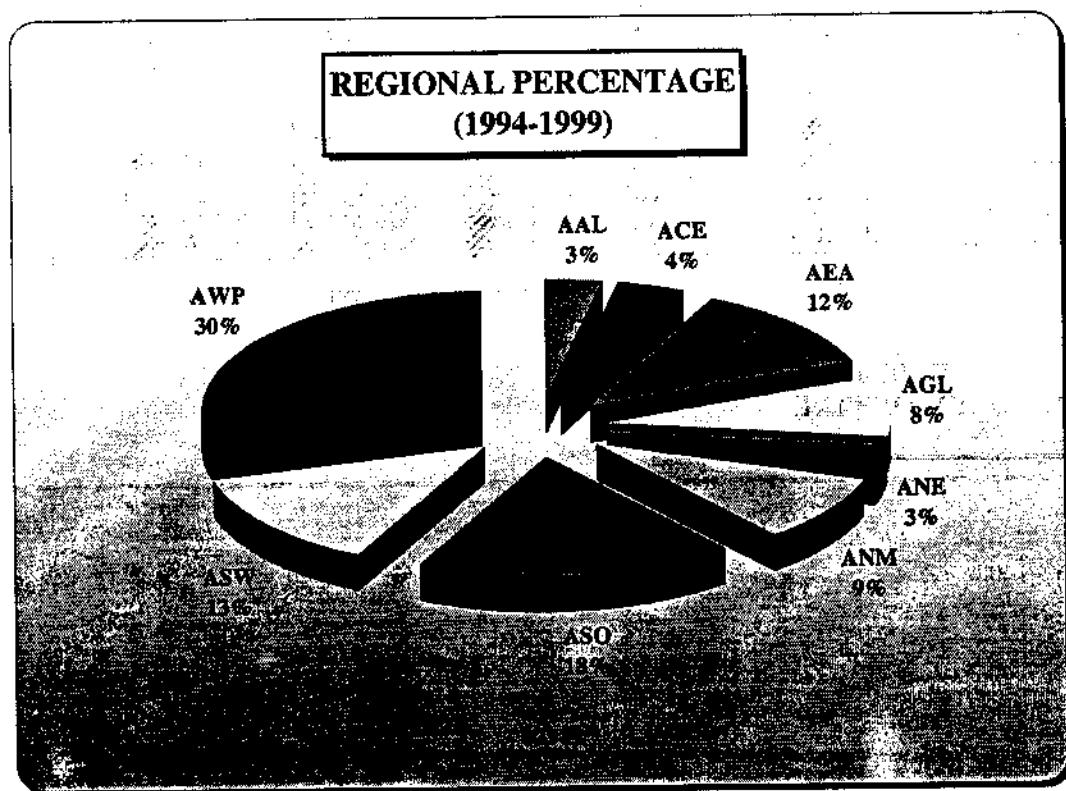
\*The reporting of a Near Midair Collision is voluntary and depends in part on an individual's perception of a situation. A report does not necessarily involve the violation of regulations or an error by air traffic controllers, nor does it necessarily represent an unsafe condition. Significant factors influencing the submission of a report may include the proximity of the aircraft involved, the element of surprise in the encounter, or the heightened alertness of the flight crew to the possibility of a Near Midair Collision because of publicity surrounding a near, or actual midair collision. Some Near Midair Collisions, including those which may involve unsafe conditions, may not be reported. Some reasons are, the failure to see another aircraft or to perceive accurately the distance from another aircraft due to restricted visibility or the relative angle of approach. Others are the fear of a penalty, or the lack of awareness of the NMAC reporting system. Data are preliminary and subject to change.

**PILOT REPORTED NEAR MIDAIR COLLISIONS  
BY YEAR  
1994 through 1999**



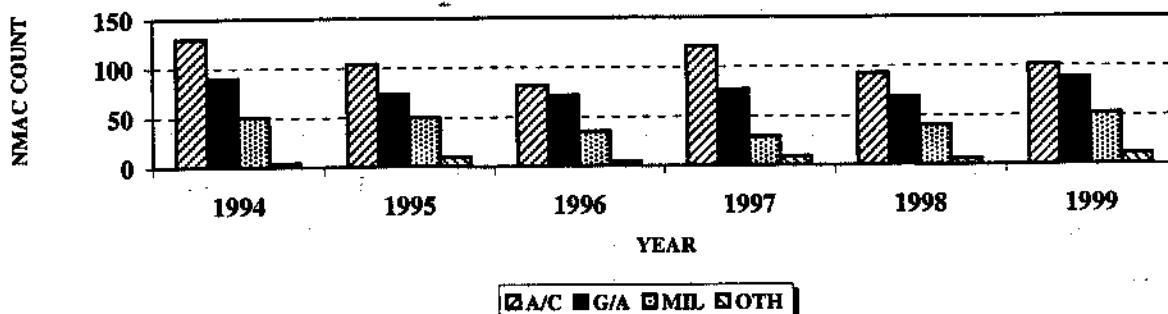
**PILOT REPORTED NEAR MIDAIR COLLISIONS  
BY REGION  
1994 through 1999**

YEAR	REGION									TOTAL
	AAL	ACE	AEA	AGL	ANE	ANM	ASO	ASW	AWP	
1994	11	3	26	25	5	24	48	39	94	275
1995	4	4	42	19	11	16	41	42	59	238
1996	10	9	22	17	6	20	43	18	49	194
1997	7	10	20	11	8	27	40	35	80	238
1998	5	13	26	14	6	16	52	20	56	208
1999	9	15	34	27	6	22	34	34	71	252



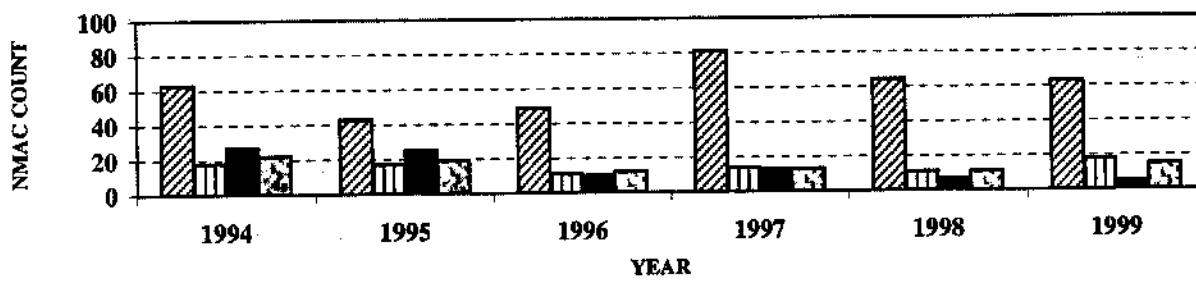
**PILOT REPORTED NEAR MIDAIR COLLISIONS  
BY REPORTING OPERATOR TYPE  
1994 through 1999**

**OPERATOR TYPE**



TYPE	1994	1995	1996	1997	1998	1999
Air Carrier (A/C)	130	104	82	121	93	101
General Aviation (G/A)	90	74	72	77	69	88
Military (MIL)	51	50	35	29	40	52
Other (OTH)	4	10	5	11	6	11

**AIR CARRIER TYPE**



[■ Part 121/129 ■ Part 125 ■ Part 135 (Sch.) □ Part 135 (Uns.)]

TYPE	1994	1995	1996	1997	1998	1999
Part 121/125	63	43	49	81	64	63
Part 129	18	17	11	14	11	18
Part 135 (Sch.)	27	25	10	13	7	5
Part 135 (Uns.)	22	19	12	13	11	15

**ABBREVIATIONS:**

A/C = Commercial Air Carrier (Data includes Part 121, 129 & 135 Operators)

G/A = General Aviation (Part 91)

MILITARY = Military (All Branches and Reserve Units)

OTHER = (Data includes Other, Public Use Operations, and Unknown Operations)

Part 121/125 = U.S. Commercial Air Carrier (Scheduled and Unscheduled)

Part 129 = Foreign Commercial Carrier of U.S. Registered Aircraft

Part 135 (Sch.) = Commuter Air Carrier (Scheduled Part 135)

Part 135 (Uns.) = Air Taxi Carrier (Unscheduled Part 135)

**COMPARISON OF PILOT REPORTED NEAR MIDAIR COLLISIONS  
BY OPERATOR TYPE**  
**1994 through 1999**

OPERATOR TYPE	1994	1995	1996	1997	1998	1999
A/C - A/C	28	23	20	17	15	17
A/C - G/A	47	43	35	49	44	44
A/C - MIL	11	13	8	20	12	11
A/C - OTH	7	5	3	6	2	5
A/C - UNK/NR	49	28	22	35	25	31
G/A - G/A	40	39	37	33	31	42
G/A - MIL	20	28	21	23	10	17
G/A - OTH	7	7	5	0	3	3
G/A - UNK/NR	31	24	27	34	29	32
MIL - MIL	8	7	1	3	5	12
MIL - OTH	1	0	1	1	0	1
MIL - UNK/NR	22	17	14	8	28	25
OTH - OTH	0	1	0	0	0	2
OTH - UNK/NR	4	3	0	4	3	4
UNK - UNK	0	0	0	5	1	6
<b>TOTALS</b>	<b>275</b>	<b>238</b>	<b>194</b>	<b>238</b>	<b>208</b>	<b>252</b>

**ABBREVIATIONS:**

**A/C = Air Carrier (Data includes Part 121, 129 & 135 Operators)**

**G/A = General Aviation**

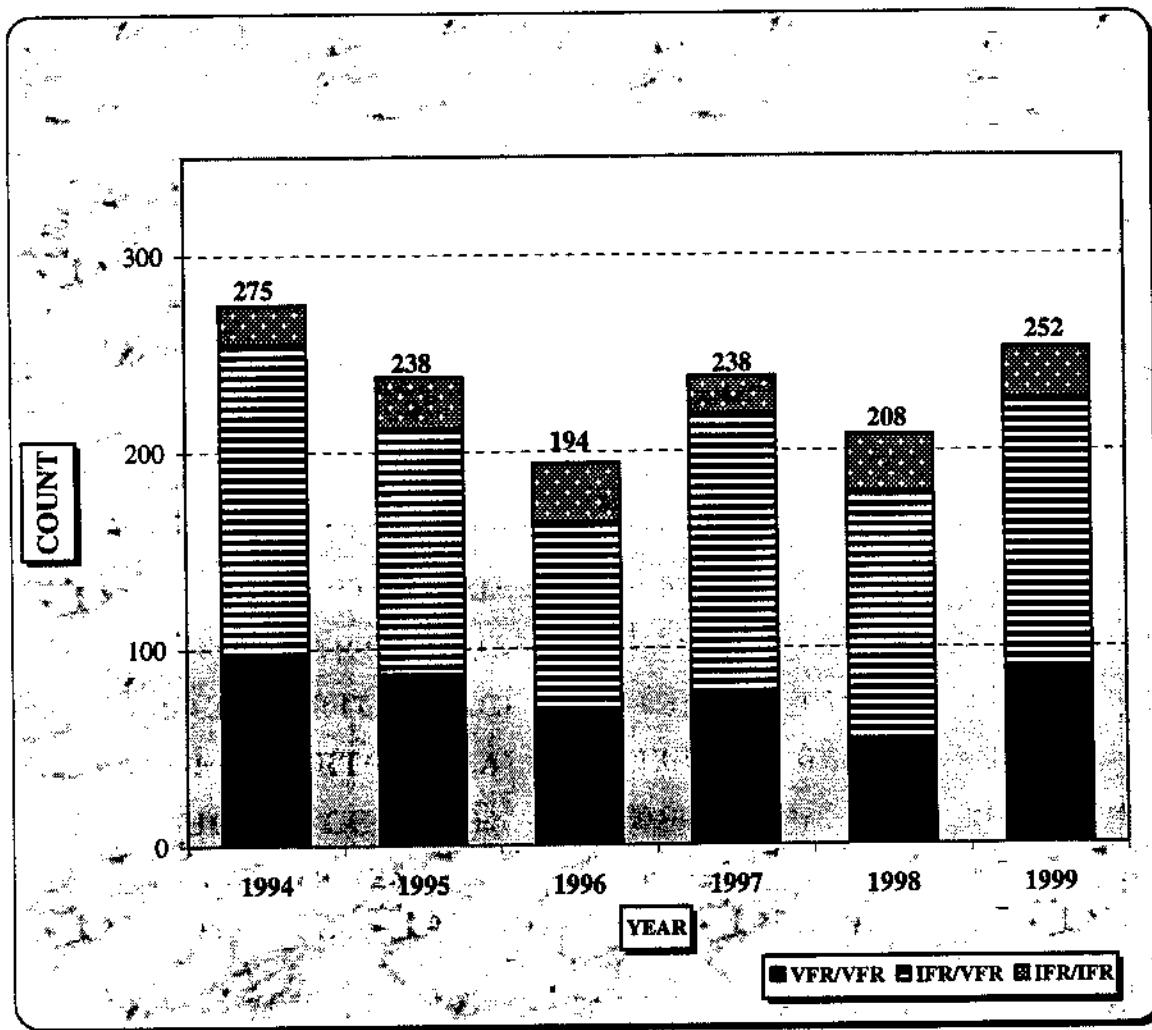
**MIL = Military**

**UNK = Unknown**

**NR = Not Reported**

**OTH = Other (Data includes Other & Public Use Operations)**

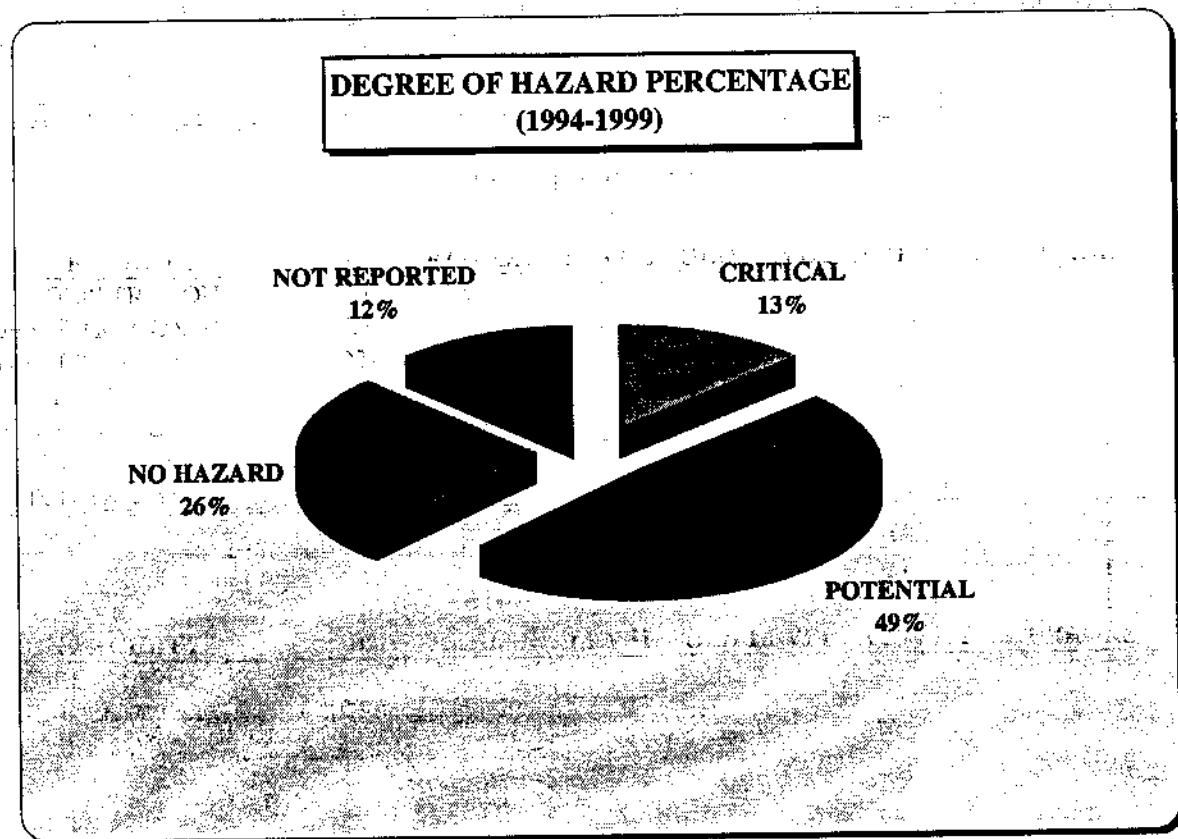
**PILOT REPORTED NEAR MIDAIR COLLISIONS  
BY TYPE OF FLIGHT PLAN  
1994 through 1999**



FLT. PLAN	1994	1995	1996	1997	1998	1999
VFR/VFR	95	87	69	75	53	87
IFR/VFR	160	125	95	144	126	139
IFR/IFR	20	26	30	19	29	26

**PILOT REPORTED NEAR MIDAIR COLLISIONS  
BY DEGREE OF HAZARD  
1994 through 1999**

YEAR	DEGREE OF HAZARD				
	Critical	Potential	No Hazard	Not Reported	Total
1994	47	139	71	18	275
1995	32	139	63	4	238
1996	26	101	55	12	194
1997	31	105	70	32	238
1998	22	97	53	36	208
1999	24	102	55	71	252



**PILOT-REPORTED NEAR MIDAIR COLLISIONS BY STATE**  
**1994 through 1999**

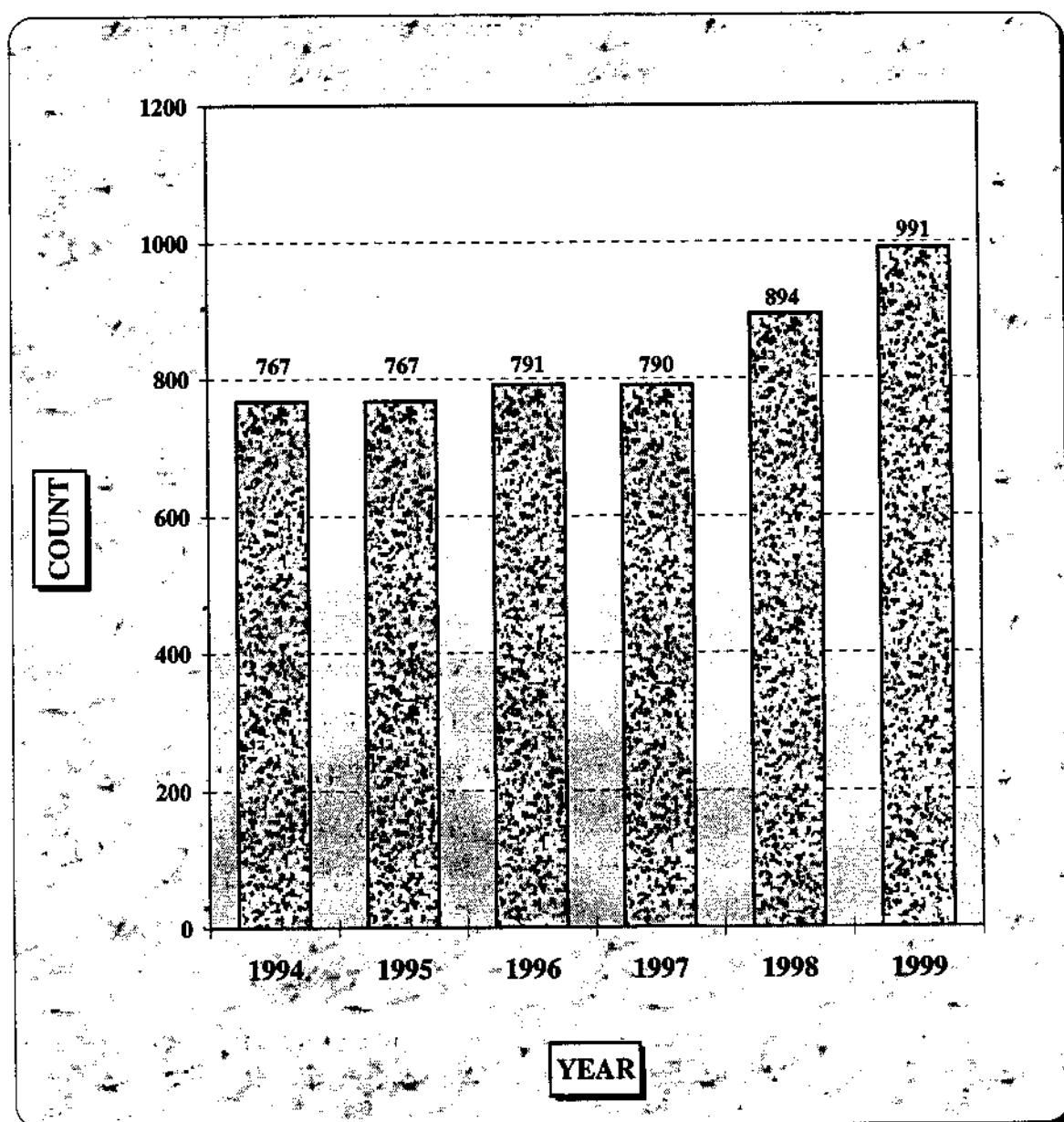
STATE	1994	1995	1996	1997	1998	1999	STATE	1994	1995	1996	1997	1998	1999
Alabama	5	1	3	4	3	3	Montana	1	1	0	0	3	2
Alaska	11	4	9	7	5	9	Nebraska	0	1	1	2	0	0
Arizona	8	8	7	13	9	13	Nevada	7	1	4	5	1	5
Arkansas	5	1	4	1	0	0	New Hampshire	0	1	1	1	0	1
Atlantic Ocean*	0	0	0	1	0	0	New Jersey	7	6	3	7	6	11
Bahamas*	0	1	1	0	1	1	New Mexico	4	3	1	2	2	2
California	64	45	37	62	42	47	New York	11	14	10	7	11	9
Colorado	7	1	5	7	4	7	North Carolina	4	3	2	7	6	2
Connecticut	1	4	2	2	0	2	North Dakota	2	0	1	0	0	5
Delaware	0	1	0	0	0	0	Ohio	4	3	4	2	2	5
District of Columbia	0	2	1	0	1	0	Oklahoma	7	8	1	5	4	3
Florida	29	21	20	16	25	15	Oregon	3	1	6	7	3	1
Georgia	3	5	3	1	9	5	Pacific Ocean*	0	0	0	0	0	1
Guam*	0	0	0	0	1	0	Pennsylvania	1	7	3	0	6	5
Hawaii	15	5	2	3	2	5	Puerto Rico*	1	2	4	1	2	0
Idaho	1	0	0	1	0	1	Rhode Island	0	1	1	1	0	0
Illinois	7	5	5	2	4	8	South Carolina	1	0	2	6	2	0
Indiana	3	1	3	1	0	3	South Dakota	0	1	1	0	0	2
Iowa	2	1	1	1	0	5	Tennessee	4	4	2	1	2	1
Kansas	1	2	3	3	11	8	Texas	22	23	8	21	15	24
Kentucky	0	0	2	1	1	3	Utah	2	2	3	1	2	3
Louisiana	1	6	3	3	0	0	Vermont	0	1	0	0	0	0
Maine	2	1	0	1	1	1	Virgin Islands*	0	2	0	1	0	1
Maryland	6	6	1	6	0	6	Virginia	1	6	3	2	1	4
Massachusetts	1	3	2	2	5	1	Washington	8	10	4	9	5	7
Michigan	2	6	3	2	4	3	West Virginia	1	0	0	0	0	2
Minnesota	3	2	3	2	1	2	Wisconsin	3	1	0	1	2	1
Mississippi	1	3	4	2	2	3	Wyoming	2	1	2	1	0	1
Missouri	1	0	3	4	2	3							
<b>*Outside Continental U.S.</b>							<b>TOTAL</b>	<b>275</b>	<b>238</b>	<b>194</b>	<b>238</b>	<b>208</b>	<b>252</b>

## **OPERATIONAL ERRORS/DEVIATIONS\***

The information in the database represents a mix of preliminary and final reports. Thus, the data presented are subject to changes as the reports become final. Operational Error/deviation monthly totals require 90 days to stabilize completely due to reporting procedures, volume, and workload; therefore, care should be exercised in making statistical comparisons for the most recent 90 day period.

\*The use of absolute numbers of **Operational Errors/Deviations** as an indication of the performance of the air traffic control system can be misleading because of the apparent relationship between **Operational Errors/Deviations** and traffic activity; an increase or decrease in the error/deviation count may merely reflect a corresponding rise or fall in the number of aircraft using the national airspace over a given period. Data are preliminary and subject to change.

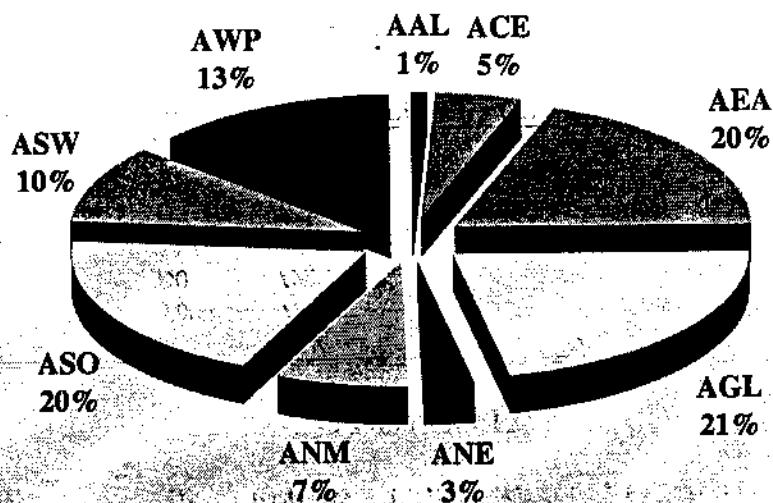
**OPERATIONAL ERRORS  
BY YEAR  
1994 through 1999**



**OPERATIONAL ERRORS  
BY REGION  
1994 through 1999**

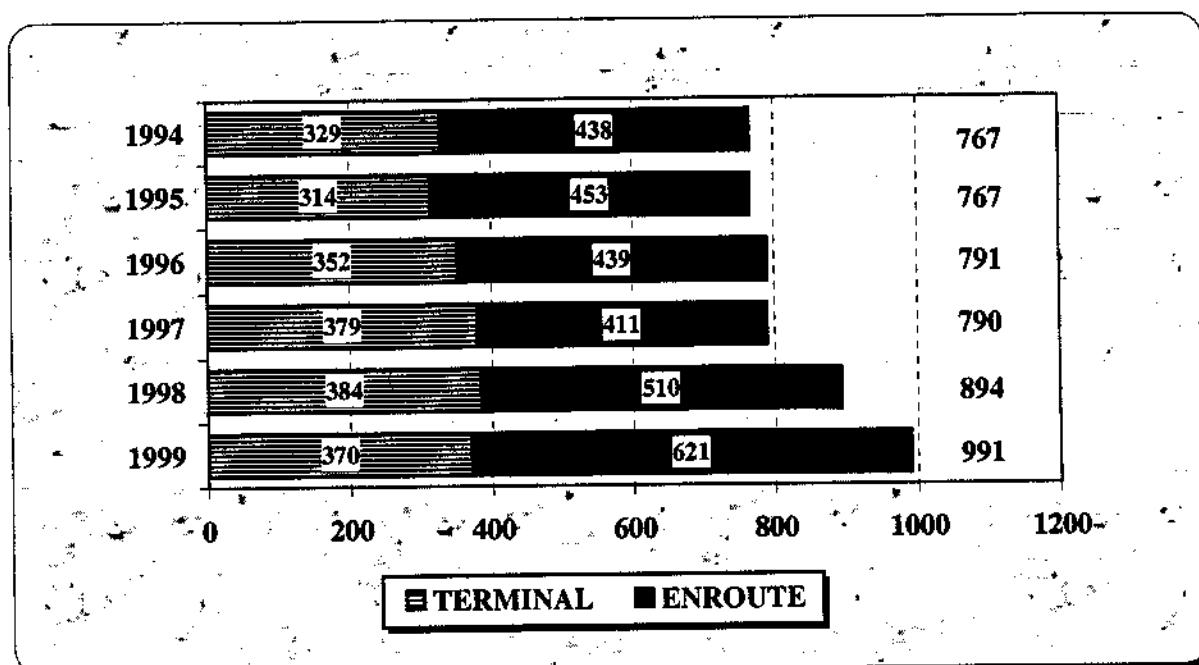
YEAR	REGION										<b>TOTAL</b>
	AAL	ACE	AEA	AGL	ANE	ANM	ASO	ASW	AWP		
1994	5	33	172	146	23	58	138	99	93	767	
1995	5	39	114	158	11	76	172	86	106	767	
1996	5	33	124	174	20	49	175	83	128	791	
1997	6	44	166	148	27	69	140	77	113	790	
1998	9	39	181	235	28	50	164	66	122	894	
1999	17	43	220	236	31	54	196	94	100	991	

**REGIONAL PERCENTAGE  
(1994-1999)**

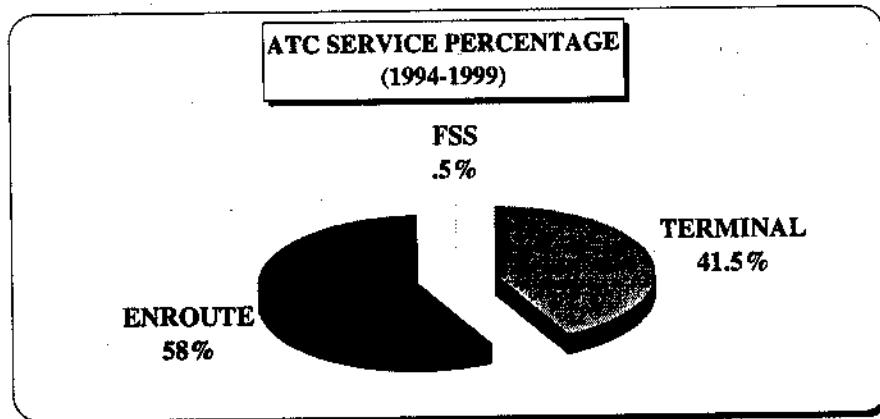


# OPERATIONAL ERRORS BY TYPE OF SERVICE

## 1994 through 1999

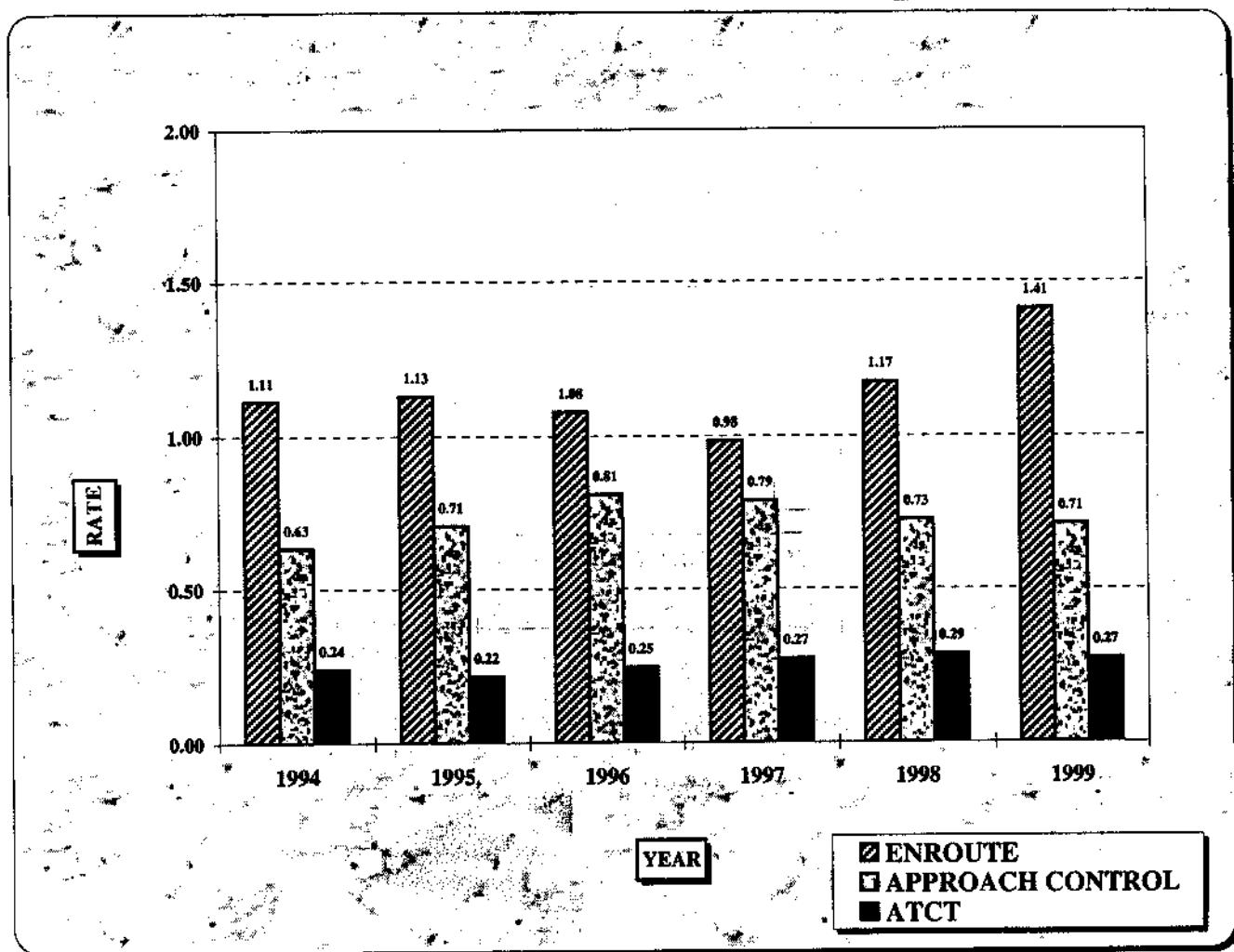


OPERATIONAL ERRORS BY TYPE OF SERVICE 1994 through 1999				
YEAR	TERMINAL	ENROUTE	FSS	TOTAL
1994	328	438	1	767
1995	314	453	0	767
1996	351	439	1	791
1997	378	411	1	790
1998	383	510	1	894
1999	368	621	2	991



Note: In the top graphic overview FSSs are included in Terminals.

# OPERATIONAL ERROR RATES BY FACILITY SERVICE TYPE 1994 through 1999

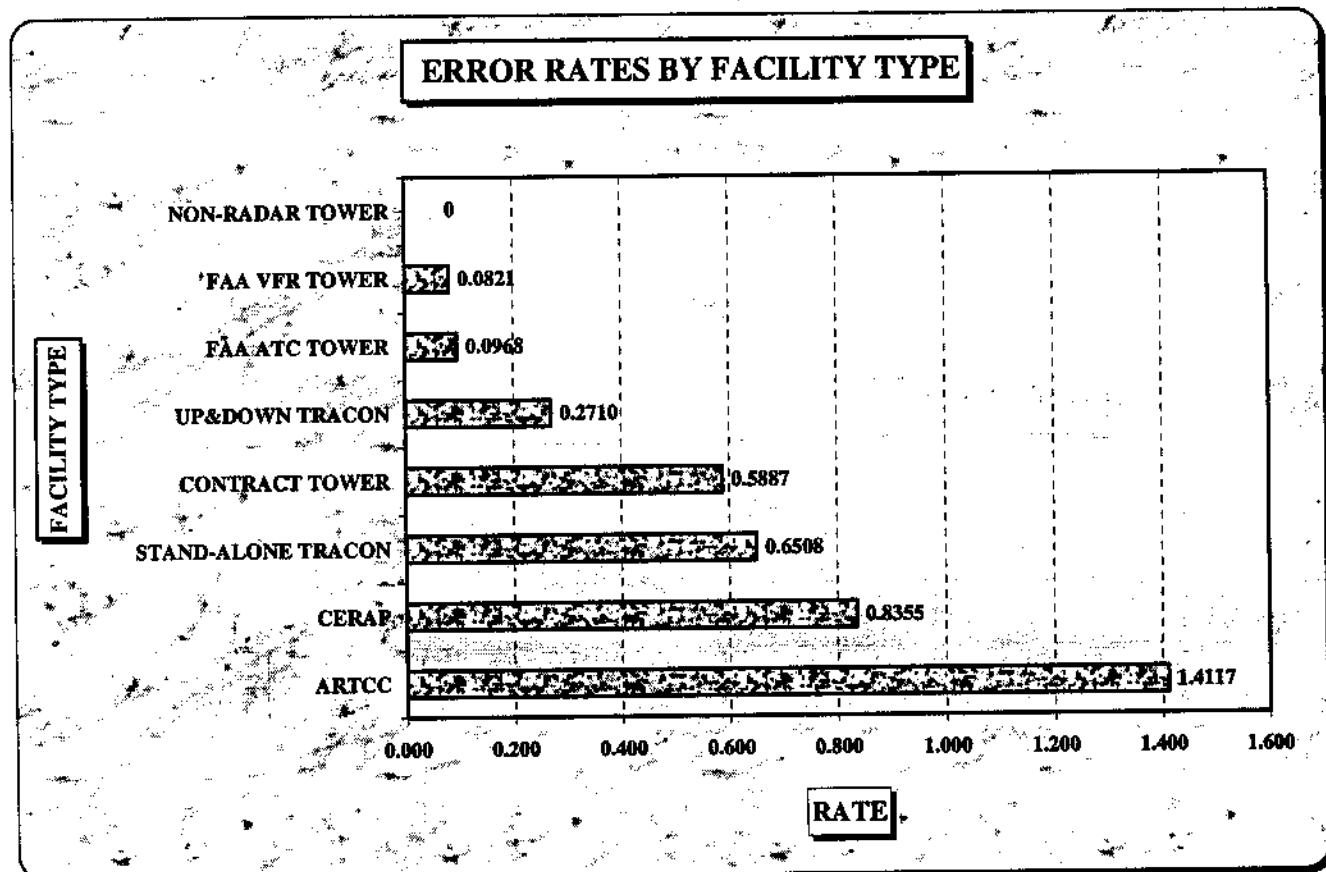


**Note:**

Error Rates Per 100,000 Operations  
Activity Data thru 12/31/1999  
Activity Data Source: APO-130

**TOTAL FACILITY RATES BY FACILITY TYPE**  
**(CALENDAR YEAR 1999)**

FACILITY	ACTIVITY	ERRORS	RATE
ARTCC	43,989,149	621	1.4117
CERAP	1,196,817	10	0.8355
STAND-ALONE TRACON	19,052,332	124	0.6508
CONTRACT TOWER	1,189,000	7	0.5887
UP&DOWN TRACON	53,871,477	146	0.2710
FAA ATC TOWER	69,246,499	67	0.0968
FAA VFR TOWER	17,056,106	14	0.0821
NON-RADAR TOWER	145,335	0	0.0000
FSS	N/A	2	N/A
<b>NATIONAL ATC RATE</b>	<b>205,746,715</b>	<b>991</b>	<b>0.4817</b>



**Note:**

Error Rates Per 100,000 Operations  
Activity Data thru 12/31/1999  
Activity Data Source: APO-130

**ARTCC/CERAP OPERATIONAL ERROR RATES BY ATC LEVEL  
(CALENDAR YEAR 1999)**

**ATC LEVEL 8**

<b>ARTCC/CERAP FACILITY</b>	<b>ID</b>	<b>REGION</b>	<b>LEVEL</b>	<b>OLD LEVEL</b>	<b>ACTIVITY</b>	<b>ERRORS</b>	<b>RATE</b>
GUAM CERAP	ZUA	AWP	8	1	102,250	0	0.000

**ATC LEVEL 9**

<b>ARTCC/CERAP FACILITY</b>	<b>ID</b>	<b>REGION</b>	<b>LEVEL</b>	<b>OLD LEVEL</b>	<b>ACTIVITY</b>	<b>ERRORS</b>	<b>RATE</b>
ANCHORAGE ARTCC	ZAN	AAL	9	2	576,426	10	1.735
SAN JUAN CERAP	ZSU	ASO	9	5	589,447	10	1.697
HONOLULU CERAP	ZHN	AWP	9	4	505,120	0	0.000

**ATC LEVEL 10**

<b>ARTCC/CERAP FACILITY</b>	<b>ID</b>	<b>REGION</b>	<b>LEVEL</b>	<b>OLD LEVEL</b>	<b>ACTIVITY</b>	<b>ERRORS</b>	<b>RATE</b>
DENVER ARTCC	ZDV	ANM	10	3	1,667,863	24	1.439
ALBUQUERQUE ARTCC	ZAB	ASW	10	3	2,078,629	26	1.251
SEATTLE ARTCC	ZSE	ANM	10	3	1,434,778	6	0.418
SALT LAKE ARTCC	ZLC	ANM	10	3	1,431,977	4	0.279

**ATC LEVEL 11**

<b>ARTCC/CERAP FACILITY</b>	<b>ID</b>	<b>REGION</b>	<b>LEVEL</b>	<b>OLD LEVEL</b>	<b>ACTIVITY</b>	<b>ERRORS</b>	<b>RATE</b>
JACKSONVILLE ARTCC	ZJX	ASO	11	3	2,200,383	30	1.363
KANSAS CITY ARTCC	ZKC	ACE	11	3	2,190,792	28	1.278
LOS ANGELES ARTCC	ZLA	AWP	11	3	2,096,907	22	1.049
MINNEAPOLIS ARTCC	ZMP	AGL	11	3	2,124,776	21	0.988
OAKLAND ARTCC	ZOA	AWP	11	3	1,631,007	16	0.981
HOUSTON ARTCC	ZHU	ASW	11	3	2,034,800	19	0.934
MIAMI ARTCC	ZMA	ASO	11	3	2,157,357	18	0.834
BOSTON ARTCC	ZBW	ANE	11	3	1,860,389	12	0.645

**ATC LEVEL 12**

<b>ARTCC/CERAP FACILITY</b>	<b>ID</b>	<b>REGION</b>	<b>LEVEL</b>	<b>OLD LEVEL</b>	<b>ACTIVITY</b>	<b>ERRORS</b>	<b>RATE</b>
WASHINGTON ARTCC	ZDC	AEA	12	3	2,657,309	75	2.822
INDIANAPOLIS ARTCC	ZID	AGL	12	3	2,637,167	57	2.161
ATLANTA ARTCC	ZTL	ASO	12	3	2,842,421	61	2.146
NEW YORK ARTCC	ZNY	AEA	12	3	2,826,617	49	1.734
CLEVELAND ARTCC	ZOB	AGL	12	3	3,146,890	51	1.621
CHICAGO ARTCC	ZAU	AGL	12	3	2,867,673	46	1.604
MEMPHIS ARTCC	ZME	ASO	12	3	2,180,778	25	1.146
FORT WORTH ARTCC	ZFW	ASW	12	3	2,188,345	21	0.960

**Note:**

Error Rates Per 100,000 Operations

Activity Data thru 12/31/1999

Activity Data Source: APO-130

**HISTORICAL ARTCC/CERAP ERROR RATES**  
**1995 through 1998**

<b>FACILITY</b>	<b>RATE BY YEAR</b>			
	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>
<b>ARTCC/CERAP FACILITY</b>				
<b>ALBUQUERQUE ARTCC (ZAB)</b>	1.551	1.128	0.899	0.424
<b>ANCHORAGE ARTCC (ZAN)</b>	0.370	0.365	0.660	0.614
<b>ATLANTA ARTCC (ZTL)</b>	1.991	1.799	1.306	1.595
<b>BOSTON ARTCC (ZBW)</b>	0.347	0.871	0.862	0.772
<b>CHICAGO ARTCC (ZAU)</b>	1.006	0.828	0.921	1.678
<b>CLEVELAND ARTCC (ZOB)</b>	1.243	1.113	1.040	1.546
<b>DENVER ARTCC (ZDV)</b>	1.336	0.720	0.872	0.916
<b>FORT WORTH ARTCC (ZFW)</b>	0.936	0.942	0.754	0.833
<b>GUAM CERAP (ZUA)</b>	0.000	0.828	0.000	0.000
<b>HONOLULU CERAP (ZHN)</b>	0.000	0.618	0.000	0.427
<b>HOUSTON ARTCC (ZHU)</b>	0.641	0.419	0.559	0.347
<b>INDIANAPOLIS ARTCC (ZID)</b>	1.559	1.709	1.390	2.005
<b>JACKSONVILLE ARTCC (ZJX)</b>	1.358	1.489	1.313	1.073
<b>KANSAS CITY ARTCC (ZKC)</b>	1.331	1.159	0.961	1.214
<b>LOS ANGELES ARTCC (ZLA)</b>	1.017	0.861	1.286	1.381
<b>MEMPHIS ARTCC (ZME)</b>	0.999	1.314	1.071	1.166
<b>MIAMI ARTCC (ZMA)</b>	1.063	0.817	0.645	0.529
<b>MINNEAPOLIS ARTCC (ZMP)</b>	0.498	0.792	0.344	0.920
<b>NEW YORK ARTCC (ZNY)</b>	1.909	2.088	1.937	1.701
<b>OAKLAND ARTCC (ZOA)</b>	0.768	1.464	0.947	0.929
<b>SALT LAKE ARTCC (ZLC)</b>	0.957	0.398	0.673	0.448
<b>SAN JUAN CERAP (ZSU)</b>	2.472	0.786	0.338	0.786
<b>SEATTLE ARTCC (ZSE)</b>	1.057	0.646	0.071	0.355
<b>WASHINGTON ARTCC (ZDC)</b>	0.994	0.775	1.285	2.178

**Note:**

Error Rates Per 100,000 Operations

Activity Data thru 12/31/1999

Activity Data Source: APO-130

**STAND-ALONE TRACON OPERATIONAL ERROR RATES BY ATC LEVEL  
(CALENDAR YEAR 1999)**

**ATC LEVEL 8**

<b>TRACON FACILITY</b>	<b>ID</b>	<b>REGION</b>	<b>LEVEL</b>	<b>OLD LEVEL</b>	<b>ACTIVITY</b>	<b>ERRORS</b>	<b>RATE</b>
OMAHA TRACON	R90	ACE	8	3	212,497	2	0.9412
FALMOUTH TRACON	K90	ANE	8	3	144,146	1	0.6937
EDWARDS TRACON (HIGH DESERT)	E10	AWP	8	4	152,090	0	0.0000
TUCSON TRACON	U90	AWP	8	4	276,540	0	0.0000

**ATC LEVEL 9**

<b>TRACON FACILITY</b>	<b>ID</b>	<b>REGION</b>	<b>LEVEL</b>	<b>OLD LEVEL</b>	<b>ACTIVITY</b>	<b>ERRORS</b>	<b>RATE</b>
YANKEE TRACON	Y90	ANE	9	4	394,535	5	1.2673
ANCHORAGE TRACON	A11	AAL	9	4	326,197	4	1.2263
PENSACOLA TRACON	P31	ASO	9	4	358,272	3	0.8374
PORTLAND TRACON	P80	ANM	9	4	375,625	2	0.5324

**ATC LEVEL 10**

<b>TRACON FACILITY</b>	<b>ID</b>	<b>REGION</b>	<b>LEVEL</b>	<b>OLD LEVEL</b>	<b>ACTIVITY</b>	<b>ERRORS</b>	<b>RATE</b>
SEATTLE TACOMA TRACON	S46	ANM	10	5	601,036	2	0.3328
LAS VEGAS TRACON	L30	AWP	10	5	678,493	2	0.2948
SALT LAKE CITY TRACON	S56	ANM	10	5	554,413	1	0.1804

**ATC LEVEL 11**

<b>TRACON FACILITY</b>	<b>ID</b>	<b>REGION</b>	<b>LEVEL</b>	<b>OLD LEVEL</b>	<b>ACTIVITY</b>	<b>ERRORS</b>	<b>RATE</b>
MINNEAPOLIS TRACON	M98	AGL	11	5	690,370	6	0.8691
PHOENIX TRACON	P50	AWP	11	5	733,665	5	0.6815
DETROIT TRACON	D21	AGL	11	5	787,060	4	0.5082
ST. LOUIS TRACON	T75	ACE	11	5	650,029	3	0.4615
DENVER TRACON	D01	ANM	11	5	681,127	3	0.4404
BOSTON TRACON	A90	ANE	11	5	618,974	2	0.3231
HOUSTON TRACON	I90	ASW	11	5	845,214	2	0.2366

**ATC LEVEL 12**

<b>TRACON FACILITY</b>	<b>ID</b>	<b>REGION</b>	<b>LEVEL</b>	<b>OLD LEVEL</b>	<b>ACTIVITY</b>	<b>ERRORS</b>	<b>RATE</b>
NEW YORK TRACON	N90	AEA	12	5	2,075,075	29	1.3975
OAKLAND BAY TRACON	O90	AWP	12	5	1,072,489	11	1.0257
SO. CALIFORNIA TRACON	SCT	AWP	12	5	2,332,708	19	0.8145
CHICAGO TRACON	C90	AGL	12	5	1,363,131	11	0.8070
DALLAS/FORT WORTH TRACON	D10	ASW	12	5	1,381,965	7	0.5065

**Note:**

Error Rates Per 100,000 Operations

Activity Data thru 12/31/1999

Activity Data Source: APO-130

**HISTORICAL STAND-ALONE TRACON ERROR RATES**  
**1995 through 1998**

FACILITY	RATE BY YEAR			
	1995	1996	1997	1998
STAND-ALONE TRACON				
ANCHORAGE TRACON (A11)	0.334	0.717	0.617	0.614
BOSTON TRACON (A90)	0.000	0.000	0.000	0.633
CHICAGO TRACON (C90)	0.480	0.956	0.843	0.748
DALLAS/FORT WORTH TRACON (D10)	0.416	0.643	0.582	0.916
DENVER TRACON (D01)	0.409	0.175	2.310	0.779
DETROIT TRACON (D21)	0.287	0.414	0.136	0.533
EDWARDS TRACON (E10)	0.000	0.000	0.706	0.000
FALMOUTH TRACON (K90)	0.000	0.000	0.792	0.000
HOUSTON TRACON (I90)	0.681	0.132	0.000	0.366
LAS VEGAS TRACON(L30)	0.667	0.805	0.325	1.656
MINNEAPOLIS TRACON (M98)	0.980	0.945	0.459	0.456
NEW YORK TRACON (N90)	1.070	1.794	2.047	1.622
OAKLAND BAY TRACON (O90)	1.249	0.682	0.477	0.868
OMAHA TRACON (R90)	0.523	0.000	0.000	0.000
PENSACOLA TRACON (P31)	0.346	0.315	0.000	0.000
PHOENIX TRACON (P50)	0.618	0.616	0.614	1.333
PORTLAND TRACON (P80)	0.281	0.546	0.000	0.278
SACRAMENTO TRACON (MCC)	0.000	0.198	0.000	0.432
SALT LAKE CITY TRACON (S56)	1.861	1.415	0.988	0.586
SEATTLE TACOMA TRACON (S46)	0.536	0.717	0.884	0.688
SO. CALIFORNIA TRACON (SCT)	1.349	1.396	1.352	0.505
ST. LOUIS TRACON (T75)	0.157	0.473	1.105	0.157
TUCSON TRACON (U90)	1.048	0.715	0.368	0.359
YANKEE TRACON (Y90)	0.287	0.574	0.305	0.546

Note:

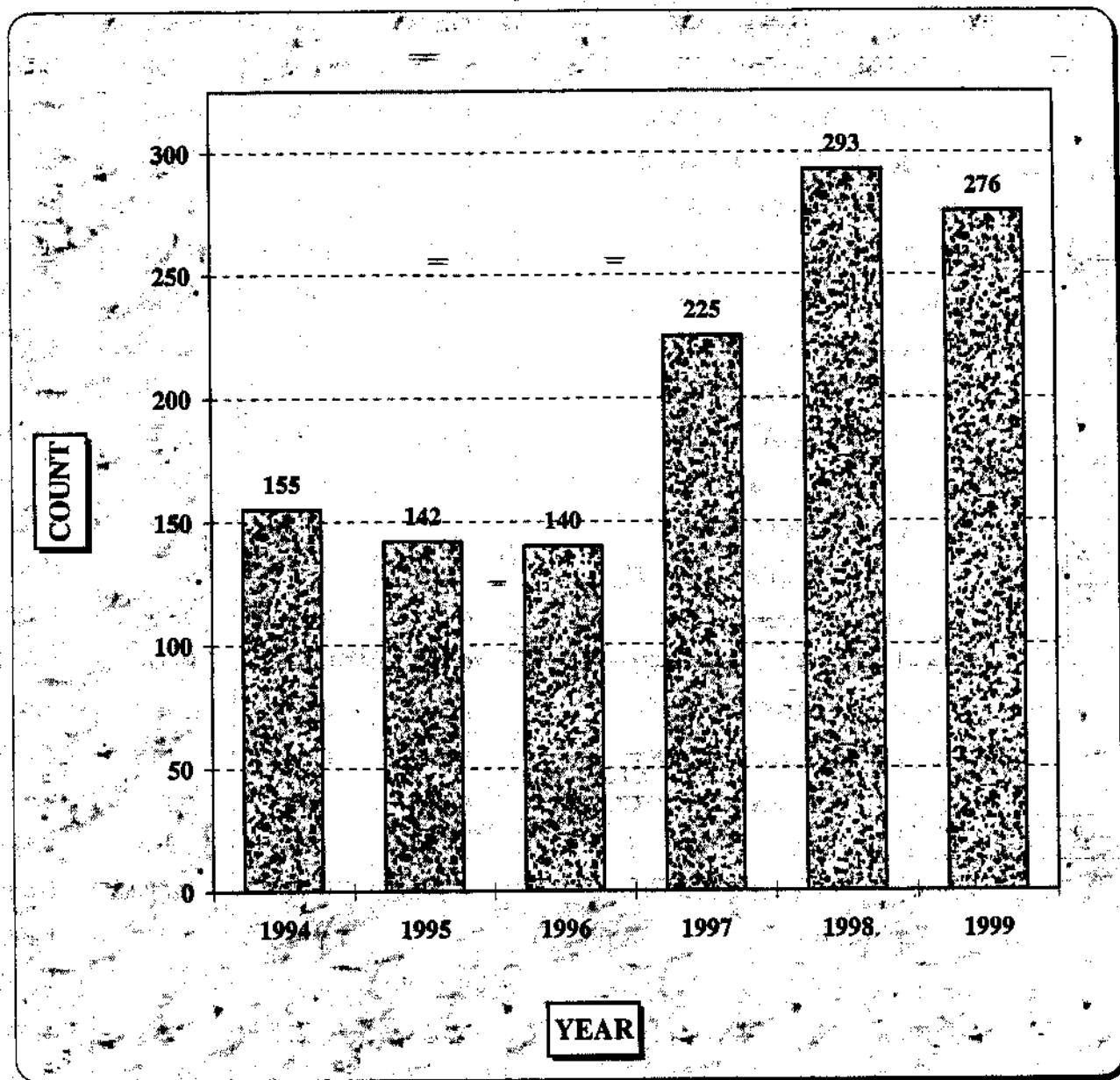
Error Rates Per 100,000 Operations

Activity Data thru 12/31/1999

Activity Data Source: APO-130

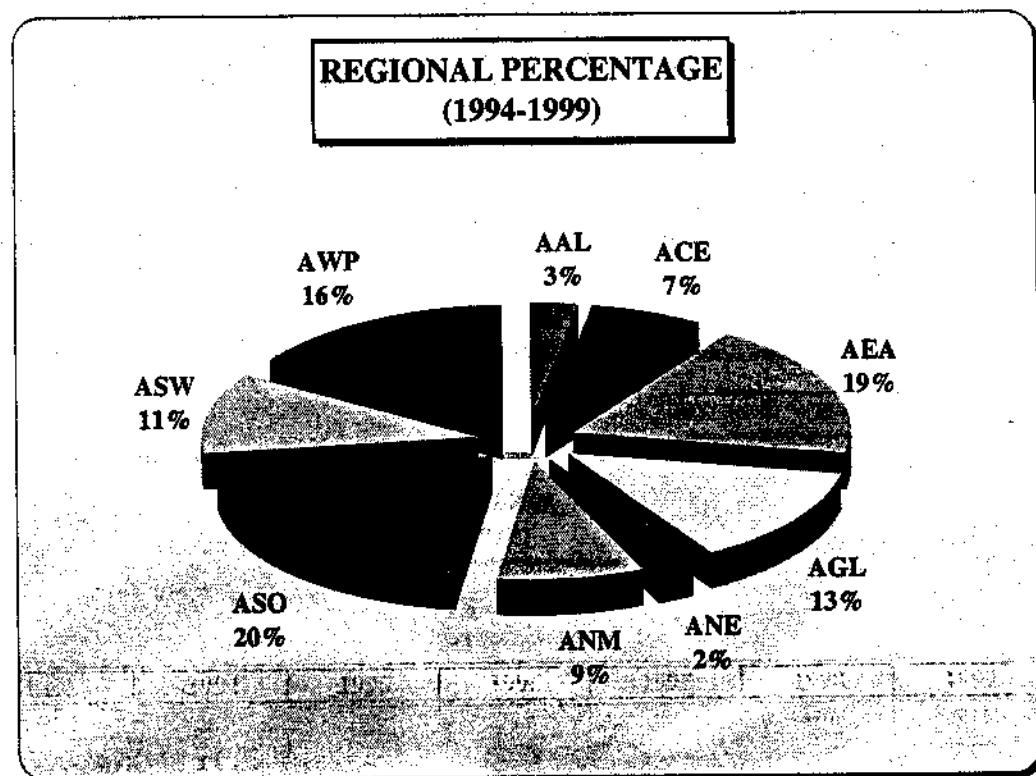
# **OPERATIONAL DEVIATIONS BY YEAR**

**1994 through 1999**

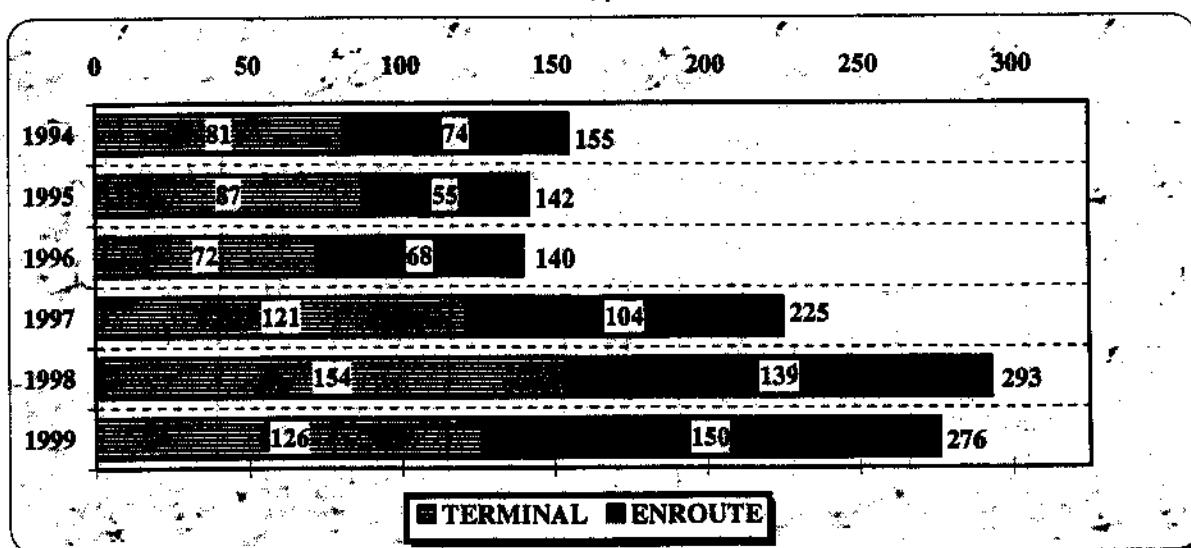


**OPERATIONAL DEVIATIONS  
BY REGION  
1994 through 1999**

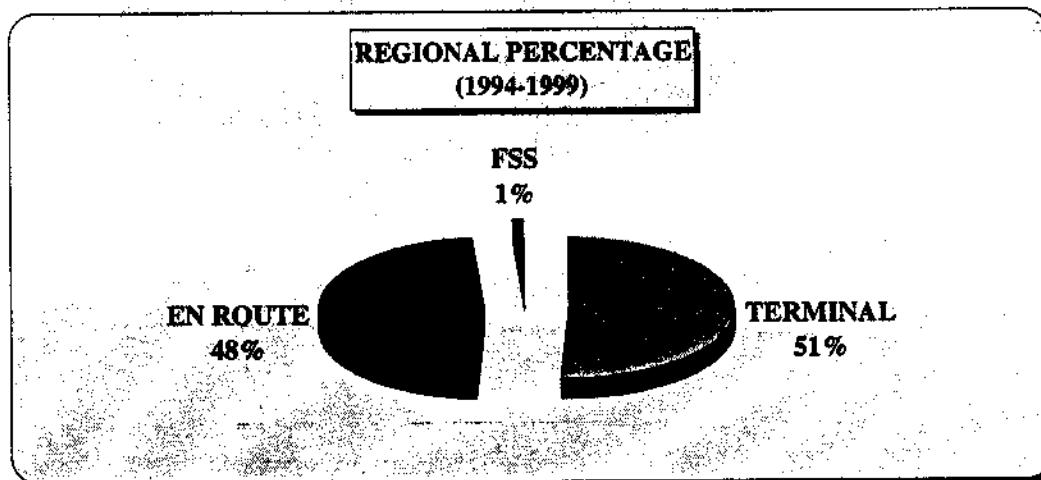
YEAR	REGION										TOTAL
	AAL	ACE	AEA	AGL	ANE	ANM	ASO	ASW	AWP		
1994	1	11	34	13	2	19	40	18	17	155	
1995	2	7	13	17	7	15	37	19	25	142	
1996	4	1	26	16	5	15	32	16	25	140	
1997	6	30	43	27	6	25	40	12	36	225	
1998	12	15	60	52	4	19	53	22	56	293	
1999	8	19	52	39	6	12	56	48	36	276	



**OPERATIONAL DEVIATIONS  
BY FACILITY SERVICE TYPE  
1994 through 1999**



TYPE OF OPERATIONAL DEVIATIONS 1994 through 1999				
YEAR	TERMINAL	EN ROUTE	FSS	TOTAL
1994	80	74	1	155
1995	86	55	1	142
1996	70	68	2	140
1997	121	104	0	225
1998	149	139	5	293
1999	121	150	5	276

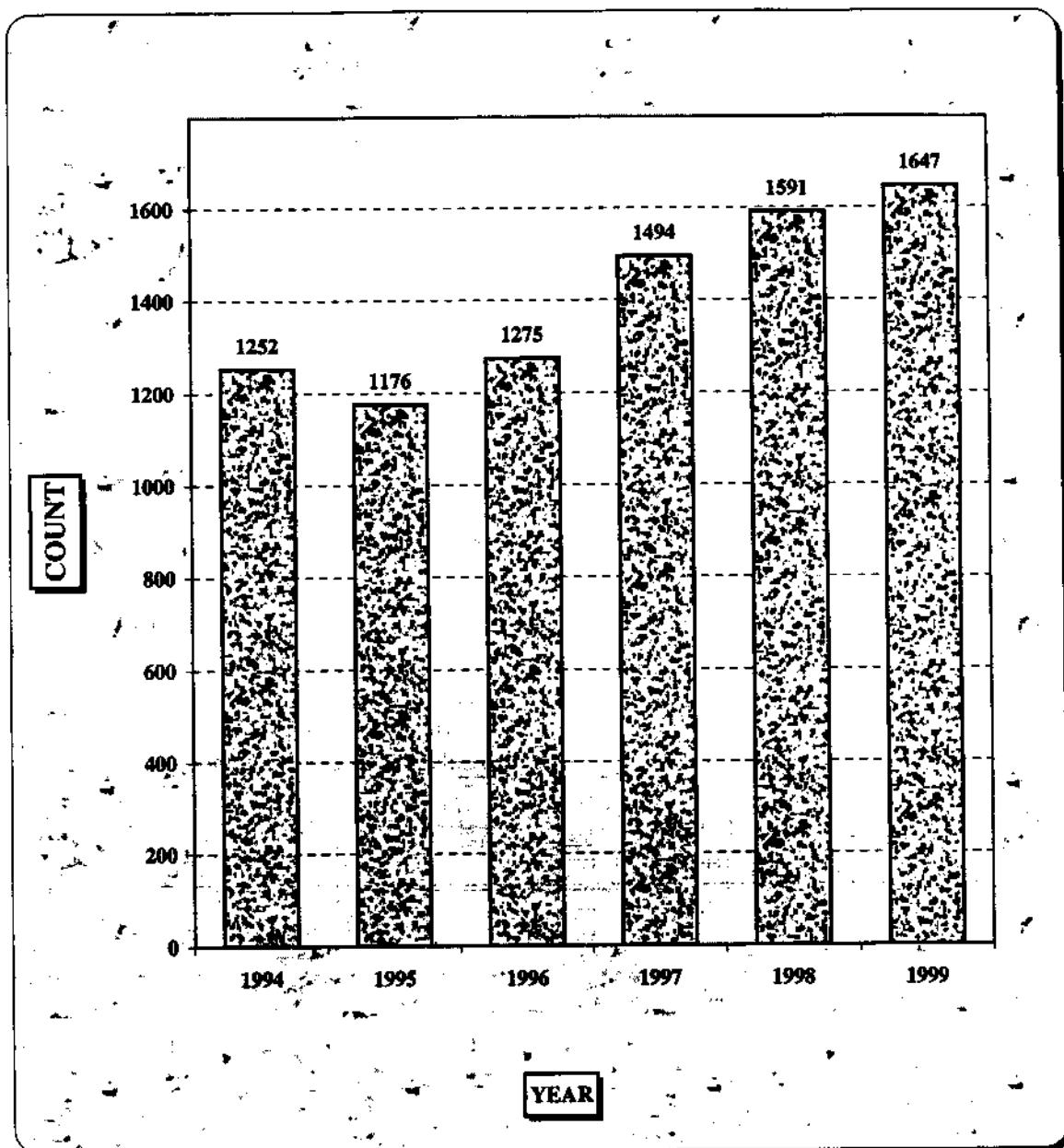


Note: In the top graphic overview FSSs are included in Terminals.

## **PILOT DEVIATIONS\***

\*While the Pilot Deviation data are considered useful in identifying possible trends associated with Pilot Deviation occurrences, there are certain limitations which should be considered when using the data presented in this report. The information in the database reflects a mix of preliminary and final reports. Thus, the data presented are subject to minor changes as all reports become final. Pilot Deviation totals require 90 days to stabilize completely due to reporting procedures, volume, and workload; therefore, care should be exercised in making statistical comparisons for the most recent 90-day period. Data are preliminary and subject to change.

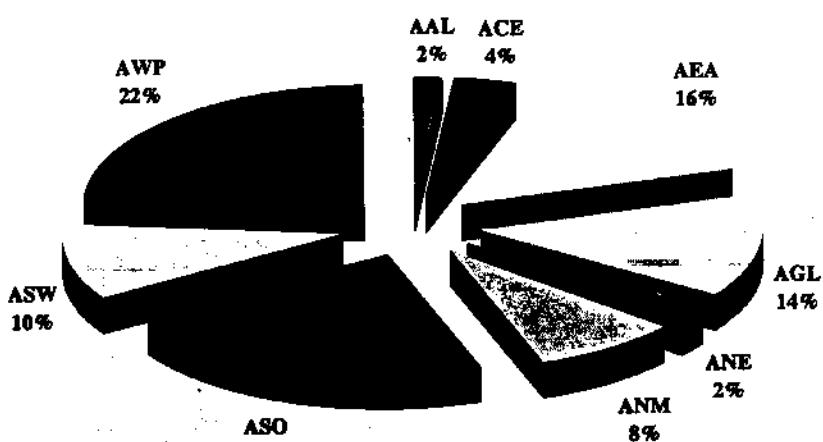
**PILOT DEVIATIONS  
BY YEAR  
1994 through 1999**



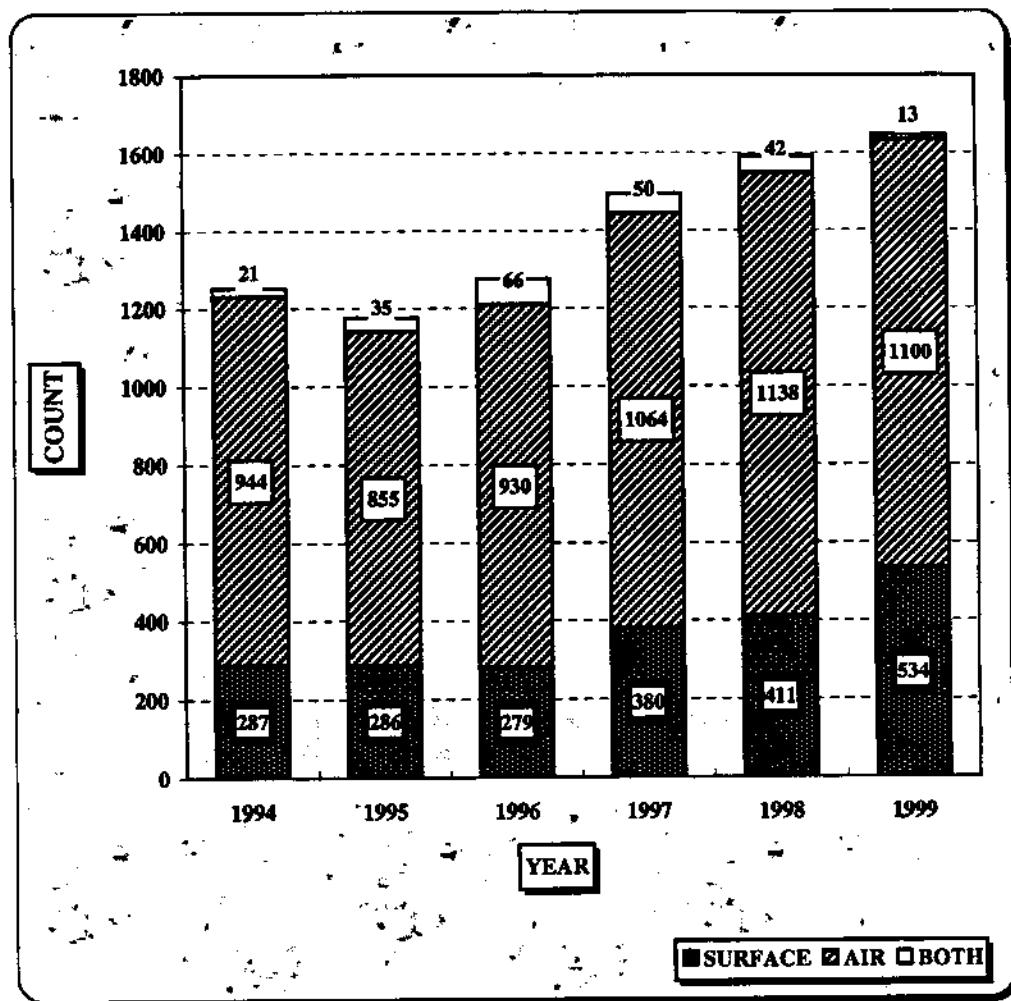
**PILOT DEVIATIONS  
BY REGION  
1994 through 1999**

YEAR	REGION									TOTAL
	AAL	ACE	AEA	AGL	ANE	ANM	ASO	ASW	AWP	
1994	20	36	196	166	25	118	303	150	238	1252
1995	7	48	206	161	19	113	275	133	214	1176
1996	2	37	174	171	28	116	308	114	325	1275
1997	38	55	244	182	18	123	276	166	392	1494
1998	40	57	243	217	28	110	322	153	421	1591
1999	23	74	245	252	46	126	358	156	367	1647

**REGIONAL PERCENTAGE  
(1994-1999)**



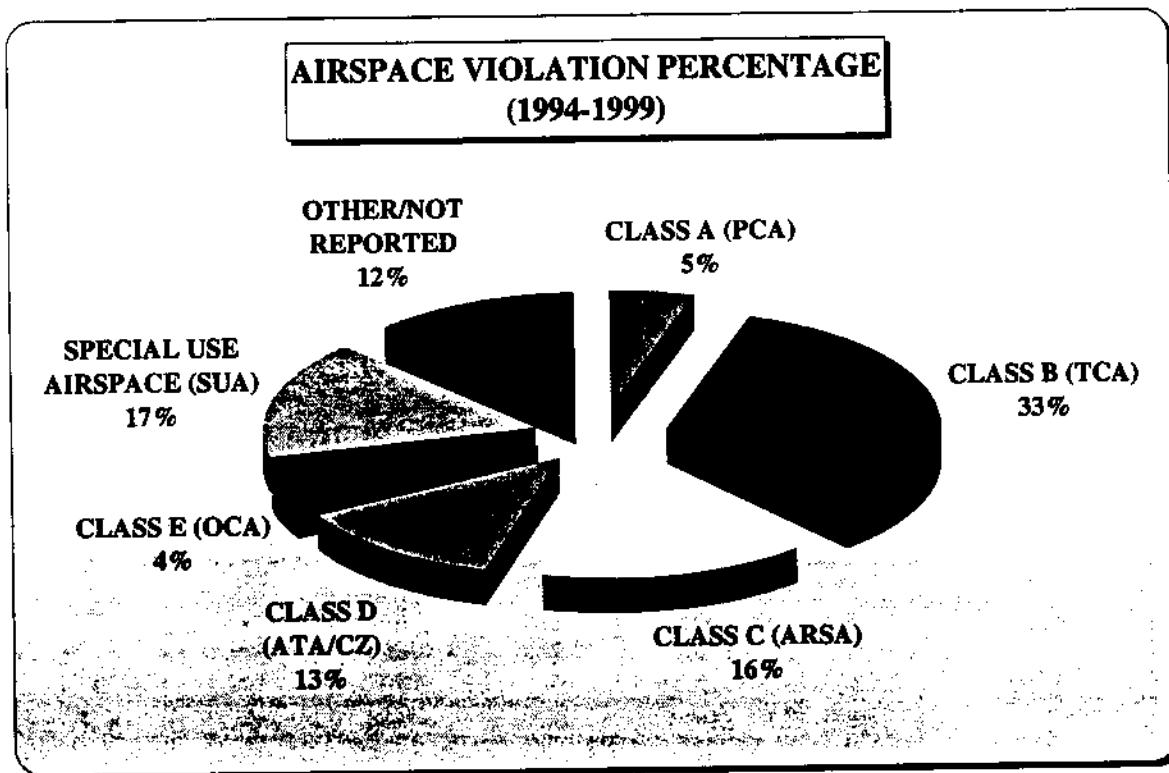
**PILOT DEVIATIONS  
BY DEVIATION TYPE  
1994 through 1999**



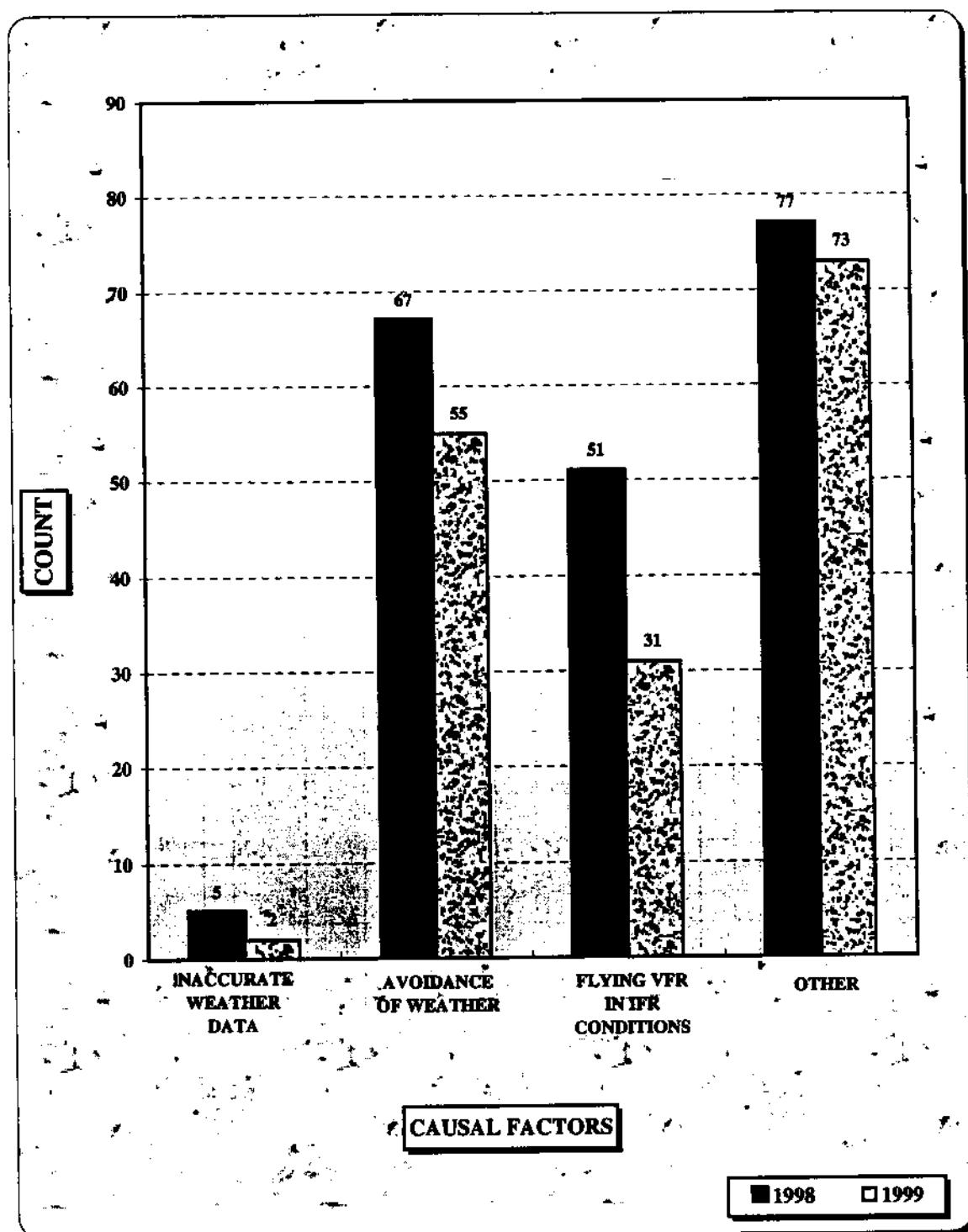
TYPE	1994	1995	1996	1997	1998	1999
SURFACE	287	286	279	380	411	534
AIR	944	855	930	1064	1138	1100
BOTH	21	35	66	50	42	13
<b>TOTAL</b>	<b>1252</b>	<b>1176</b>	<b>1275</b>	<b>1494</b>	<b>1591</b>	<b>1647</b>

**PILOT DEVIATIONS  
BY TYPE OF AIRSPACE VIOLATION  
1994 through 1999**

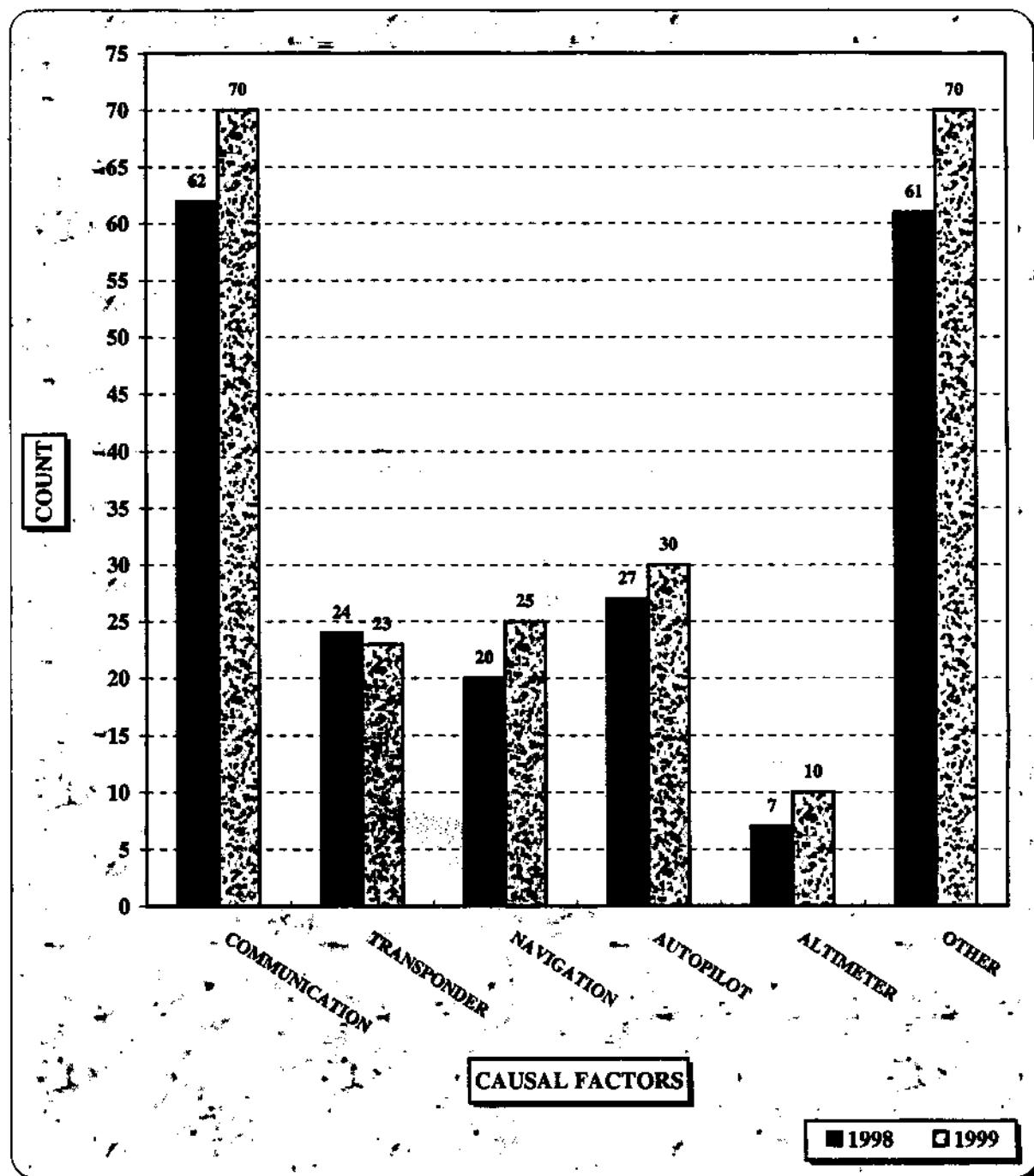
TYPE OF AIRSPACE VIOLATION	YEAR					
	1994	1995	1996	1997	1998	1999
CLASS A (PCA)	19	25	19	28	35	23
CLASS B (TCA)	151	137	138	183	216	166
CLASS C (ARSA)	90	77	66	61	76	97
CLASS D (ATA/CZ)	41	59	71	76	66	61
CLASS E (OCA)	20	24	8	12	34	24
SPECIAL USE AIRSPACE (SUA)	93	77	70	94	79	75
OTHER/NOT REPORTED	45	53	61	49	71	80
<b>TOTALS:</b>	<b>459</b>	<b>459</b>	<b>452</b>	<b>433</b>	<b>503</b>	<b>526</b>



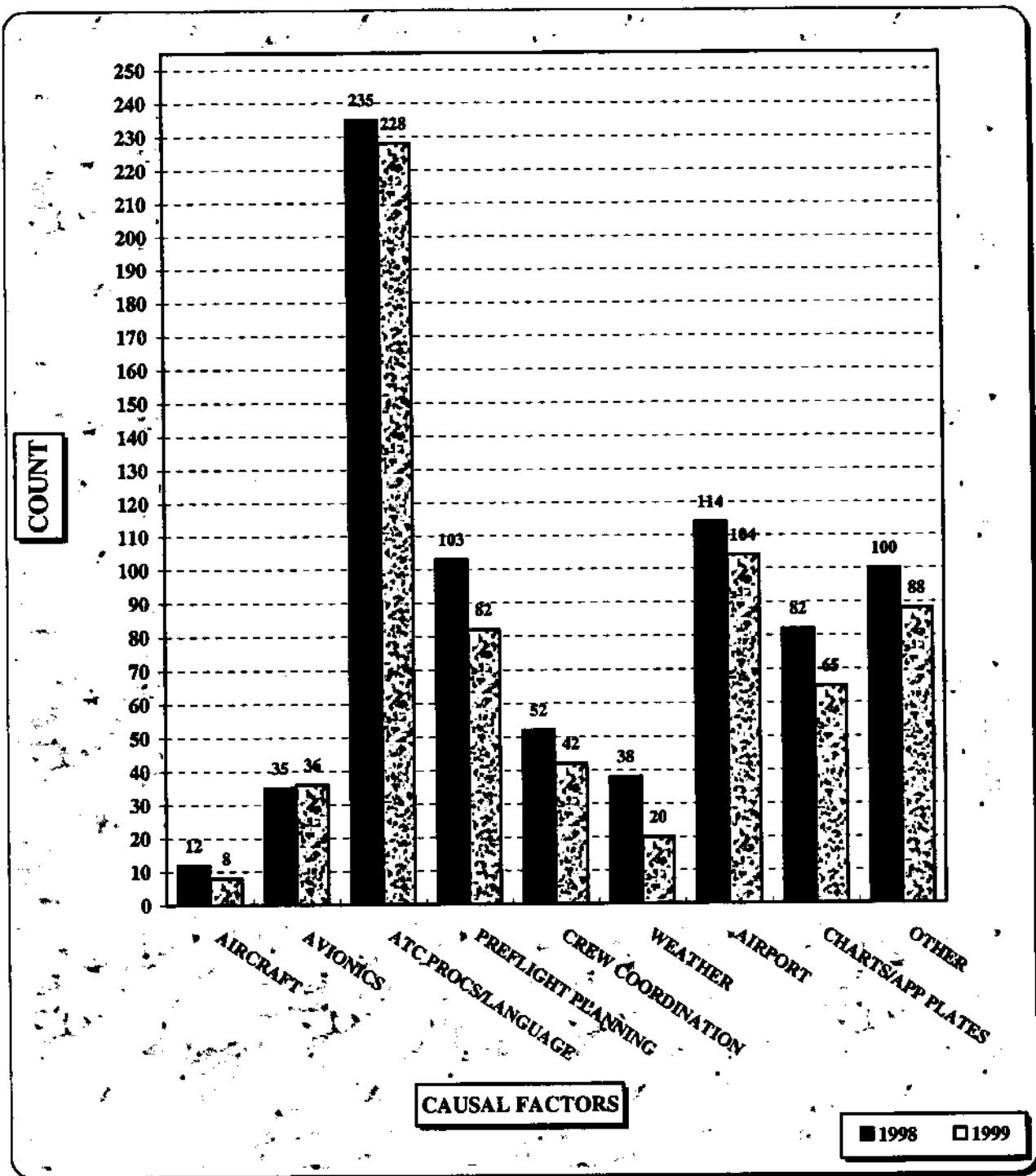
**PILOT DEVIATION CAUSAL FACTORS  
WEATHER  
1998 versus 1999**



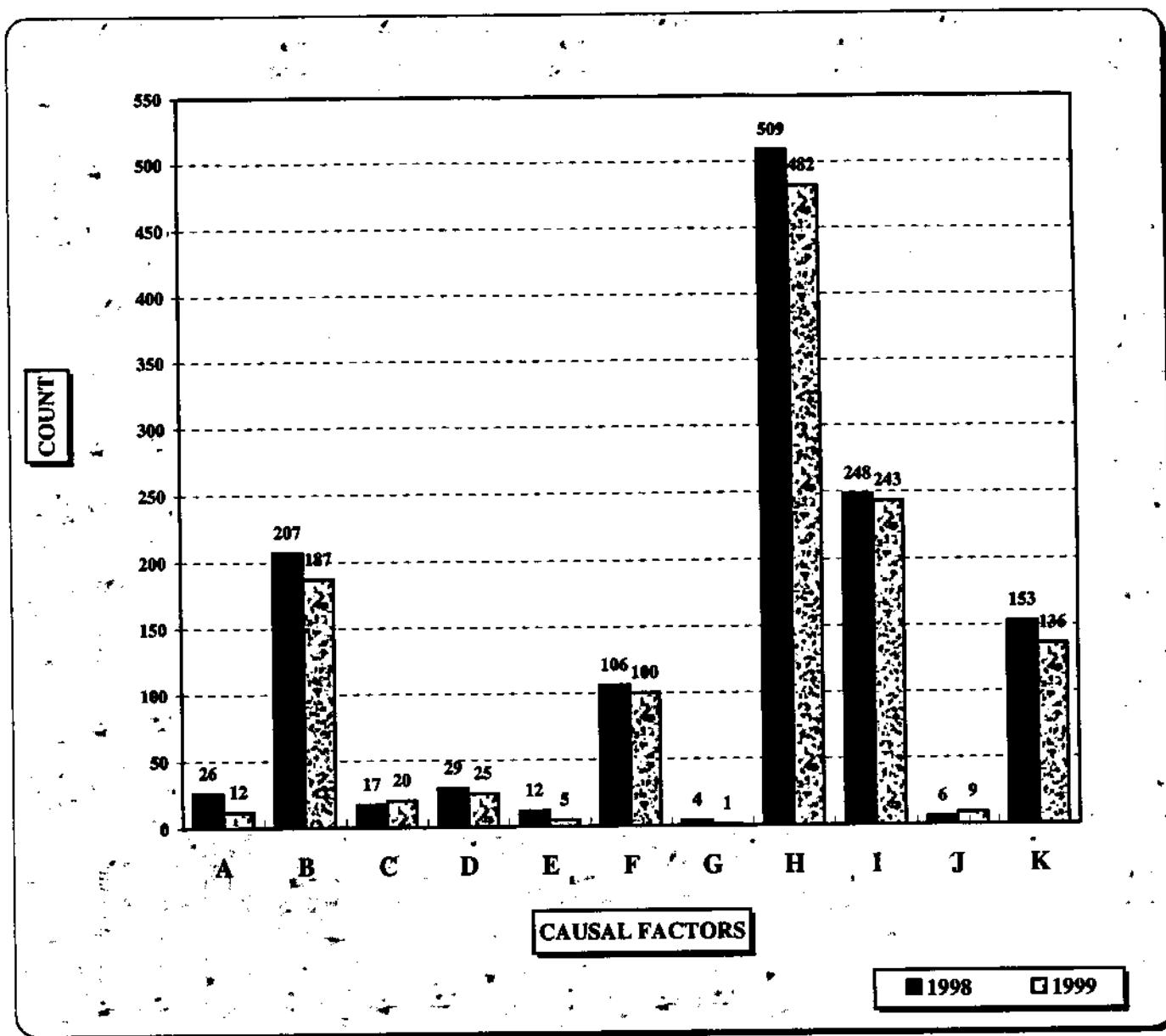
**PILOT DEVIATION CAUSAL FACTORS**  
**AIRCRAFT EQUIPMENT**  
**1998 versus 1999**



**PILOT DEVIATION CAUSAL FACTORS**  
**PILOT'S KNOWLEDGE/EXPERIENCE**  
**1998 versus 1999**



**PILOT DEVIATION CAUSAL FACTORS**  
**OPERATIONAL**  
**1998 versus 1999**

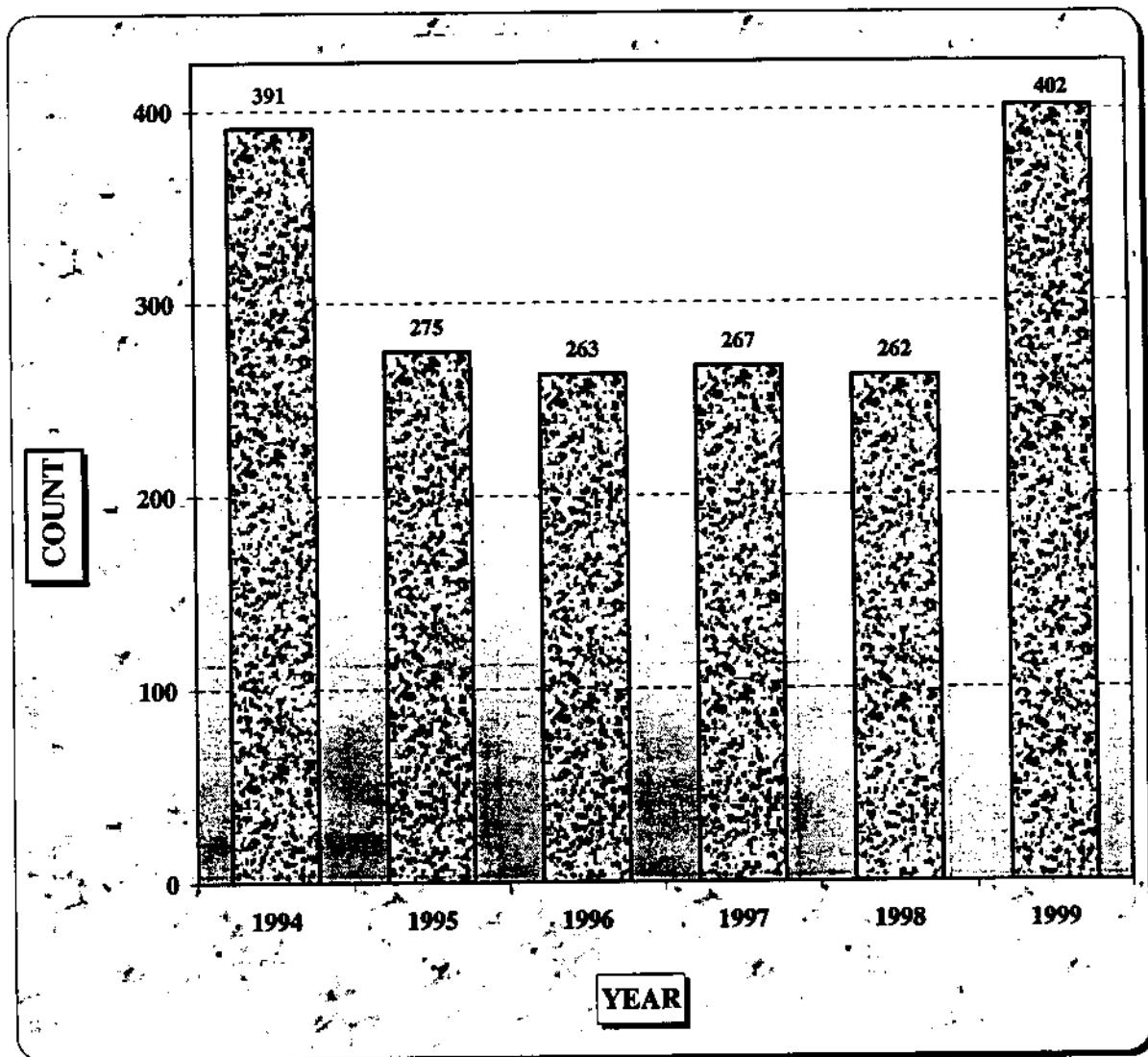


- A. Overworked
- B. Distracted
- C. Fatigued
- D. Not Actively Scanning
- E. Unable to Locate Traffic, Even With Traffic Advisory
- F. Disoriented or Lost
- G. Sick
- H. Not Following ATC Instructions
- I. Operating in Class A, B, C, or D Without Required Communication or Authorization
- J. Operating With Transponder Off
- K. Other

## **VEHICLE/PEDESTRIAN DEVIATIONS\***

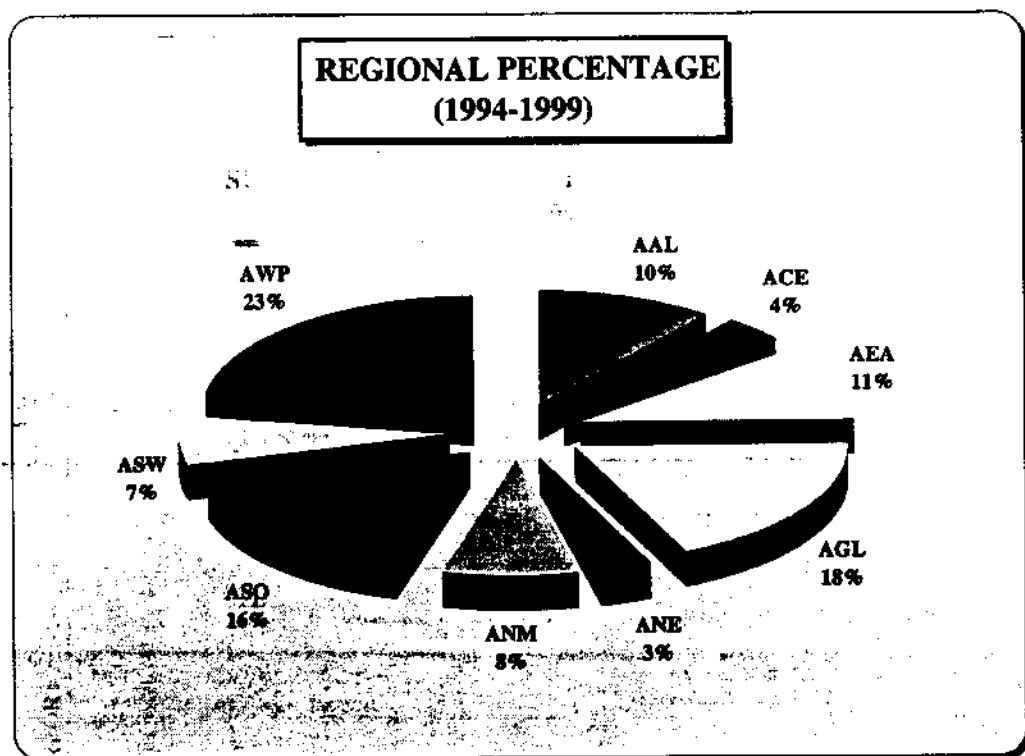
**\*Vehicle/Pedestrian Deviations** may require 90 days to stabilize; therefore, care should be exercised in making statistical comparisons for the most recent 90-day period. Data are preliminary and subject to change.

**VEHICLE/PEDESTRIAN DEVIATIONS  
BY YEAR  
1994 through 1999**



**VEHICLE/PEDESTRIAN DEVIATIONS  
BY REGION  
1994 through 1999**

YEAR	REGION									TOTAL
	AAL	ACE	AEA	AGL	ANE	ANM	ASO	ASW	AWP	
1994	42	12	37	65	11	19	41	30	134	391
1995	28	9	31	59	10	22	35	8	73	275
1996	33	12	21	36	9	40	50	19	43	263
1997	35	10	27	58	7	13	44	20	53	267
1998	24	8	32	49	11	14	56	22	46	262
1999	32	18	51	77	11	40	80	29	64	402



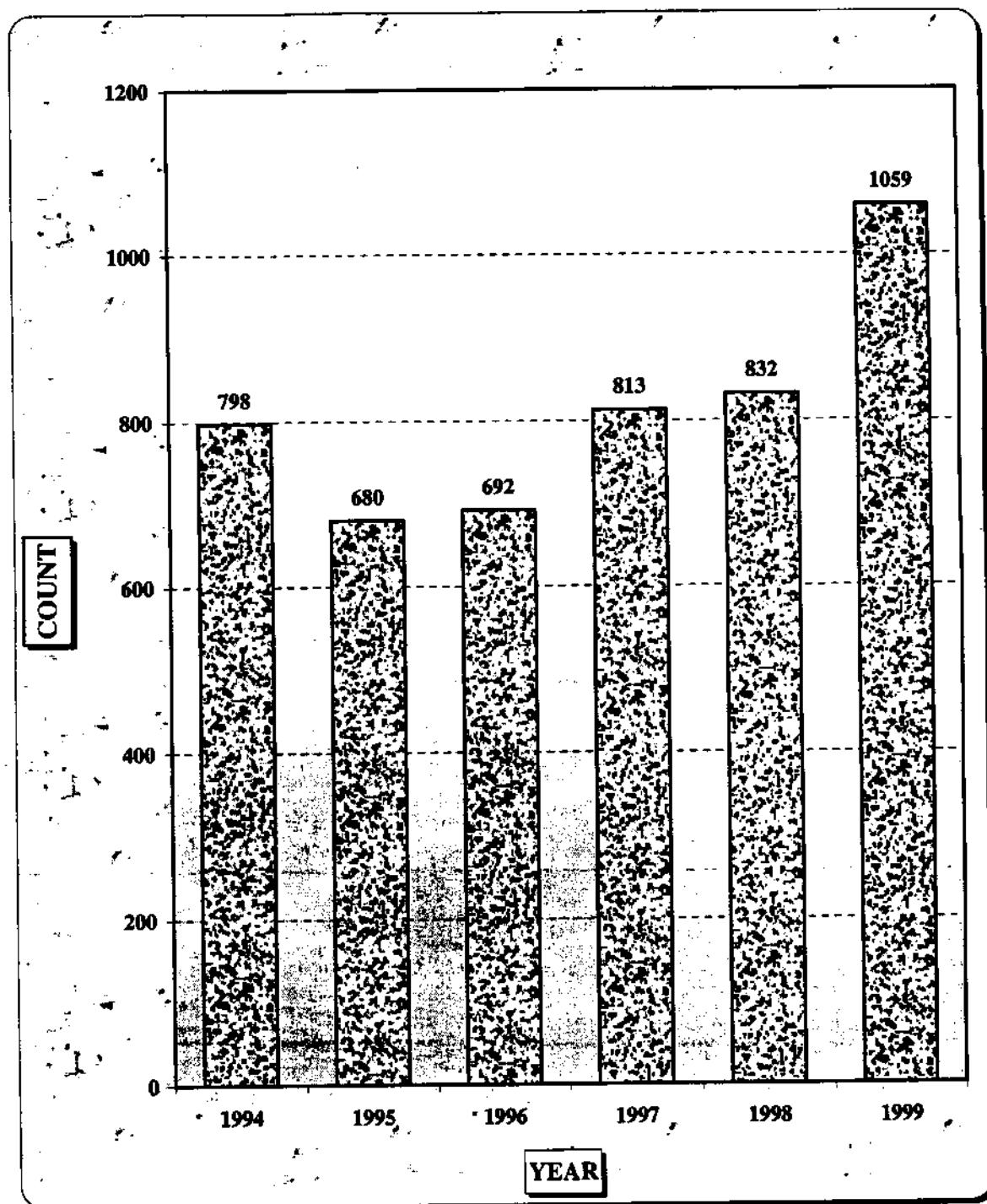
**VEHICLE/PEDESTRIAN DEVIATIONS, TOP FACILITIES  
(1999 RANKING)**

AIRPORT	ID	1998	1999
Merrill Field Arpt, AK	MRI	17	24
Jeffco Arpt, CO	BJC	1	21
Ft. Lauderdale Executive Arpt, FL	FXE	8	15
Montgomery Field Arpt, CA	MYF	2	14
Andrews AFB, MD	ADW	2	13
Richard Lloyd Jones Jr. Arpt, OK	RVS	2	10
Santa Monica Muni Arpt, CA	SMO	2	8
San Francisco Intl, CA	SFO	1	8
Luis Munoz Marin Intl, PR	SJU	7	7
Hector Intl, ND	FAR	1	7
Ann Arbor Muni Arpt, MI	ARB	0	7
Willow Run Arpt, MI	YIP	5	6
Birmingham Arpt, AL	BHM	2	6
Anoka County-Blaine Arpt (Janes Field), MN	ANE	1	6
David Wayne Hooks Memorial Arpt, TX	DWH	0	6
Lambert-St. Louis Intl, MO	STL	6	5
Mnpls-St. Paul Intl/World Chamberlain Arpt, MN	MSP	1	5
Allegheny County Arpt, PA	AGC	7	4
Crystal Arpt, MN	MIC	7	4
General Mitchell Intl, WI	MKE	3	4
Flying Cloud Arpt, MN	FCM	1	4
Huntsville Intl/Carl T. Jones Field Arpt, AL	HSV	1	4
Reading Regional/Carl A. Spaatz Field Arpt, PA	RDG	1	4
Reno/Tahoe Intl, NV	RNO	1	4
Buffalo Niagara Intl, NY	BUF	0	4
Lake Hood SPB, AK	LHD	0	4

## **SURFACE INCIDENTS\***

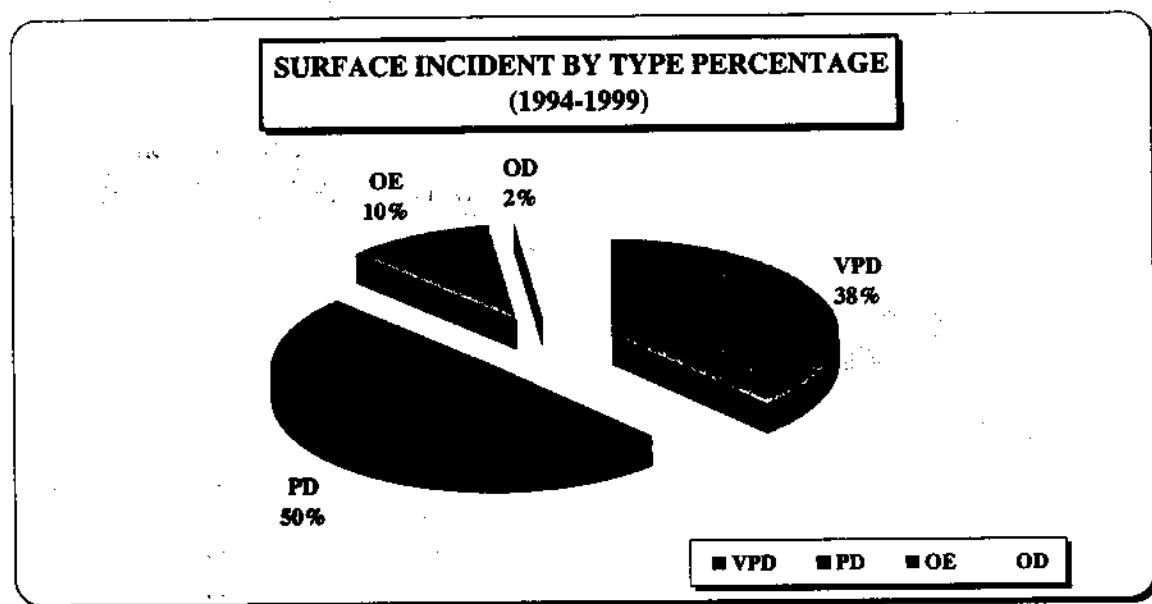
**\*Surface Incidents may require 90 days to stabilize; therefore, care should be exercised in making statistical comparisons for the most recent 90-day period.  
Data are preliminary and subject to change.**

**SURFACE INCIDENTS  
BY YEAR  
1994 through 1999**



**SURFACE INCIDENTS  
BY TYPE  
1994 through 1999**

<b>TYPE</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>TOTAL</b>
<b>VPD</b>	<b>391</b>	<b>275</b>	<b>263</b>	<b>267</b>	<b>262</b>	<b>402</b>	<b>1860</b>
<b>PD</b>	<b>308</b>	<b>321</b>	<b>345</b>	<b>430</b>	<b>453</b>	<b>547</b>	<b>2404</b>
<b>OE</b>	<b>86</b>	<b>67</b>	<b>76</b>	<b>93</b>	<b>96</b>	<b>92</b>	<b>510</b>
<b>OD</b>	<b>13</b>	<b>17</b>	<b>8</b>	<b>23</b>	<b>21</b>	<b>18</b>	<b>100</b>
<b>TOTAL</b>	<b>798</b>	<b>680</b>	<b>692</b>	<b>813</b>	<b>832</b>	<b>1059</b>	<b>4874</b>



**Note: A Single Surface Incident May Result In More Than One Incident Report.**

**SURFACE INCIDENTS**  
**TOP AIRPORTS (1999 RANKING)**  
**12 MONTH COMPARISON**

AIRPORT	1998	1999
Reno/Tahoe Intl, NV	5	33
Merrill Field Arpt, AK	19	27
Montgomery Field Arpt, CA	7	25
Jeffco Arpt, CO	2	23
Ft. Lauderdale Executive Arpt, FL	10	22
San Francisco Intl, CA	12	21
John Wayne-Orange County Arpt, CA	7	19
Los Angeles Intl, CA	17	17
Long Beach/Daugherty Field Arpt, CA	23	15
Lambert-St. Louis Intl, MO	16	14
Luis Munoz Marin Intl, PR	9	14
Andrews AFB, MD	4	14
Richard Lloyd Jones Jr. Arpt, OK	5	13
San Jose Intl, CA	11	12
Flying Cloud Arpt, MN	6	11
Mnpls-St. Paul Intl/World Chamberlain Arpt, MN	3	11
Theodore Francis Green State Arpt, RI	3	11
Hector Intl, ND	2	11
Cleveland-Hopkins Intl, OH	8	10
San Antonio Intl, TX	5	10
Seattle-Tacoma Intl, WA	1	10
David Wayne Hooks Memorial Arpt, TX	0	10
Phoenix Sky Harbor Intl, AZ	20	9
General Mitchell Intl, WI	15	9
Willow Run Arpt, MI	10	9
Centennial Arpt, CO	5	9
Santa Monica Muni Arpt, CA	2	9
Ann Arbor Muni Arpt, MI	0	9
Crystal Arpt, MN	11	8
Palm Beach Intl, FL	8	8
Raleigh-Durham Intl, NC	5	8
Birmingham Arpt, AL	3	8
William B Hartsfield Atlanta Intl, GA	2	8
Palm Springs Intl, CA	0	8

SURFACE INCIDENTS BY AIRPORT  
12 MONTH COMPARISON

JANUARY 1998 - DECEMBER 1998 versus JANUARY 1999 - DECEMBER 1999  
*CAUTION\*: A surface incident may have multiple causal factors and result in multiple reports*

AIRPORT	PILOT		SURFACE		SURFACE		VEHICLE		RATE	
	DEVIATIONS	1998	1999	DEVIATIONS	1998	1999	PEDESTRIAN	DEVIATION	1998	1999
Abilene Regional Apt, TX	4	0	0	0	0	4	0	8	0	9.752 0.000
Adams Field Apt, AR	4	1	0	0	0	1	0	5	2	2.931 1.06
Addison Apt, TX	2	2	2	0	0	0	2	4	4	2.282 2.303
Akron-Canton Regional Apt, OH	1	1	0	0	0	0	1	1	2	0.800 0.815
Albany Intl, NY	1	2	0	0	0	0	1	1	3	0.705 2.005
Albert Whited Apt, FL	0	1	0	0	0	0	0	3	0	0.000 3.194
Albuquerque Intl, NM	0	2	0	0	0	0	0	1	0	0.000 1.304
Allegheny County Apt, PA	-1	0	0	0	0	0	0	7	4	8 3.192
Allen AAF, AK	0	1	0	0	0	0	0	0	0	N/A N/A
Anchorage Intl, AK	-1	2	2	0	0	6	1	10	3	3.209 1.313
Andrews AFB, MD	0	1	0	0	0	2	13	4	14	3.228 12.778
Ann Arbor Muni Apt, MI	2	0	0	0	0	0	0	7	0	9 6.770
Anniston Metro Apt, AL	0	0	0	0	0	0	0	0	2	0 N/A N/A
Anoka County-Blaine Apt (James Field), MN	0	0	0	0	0	1	6	1	6	0.695 4.006
Aspen-Pitkin County/Snowy Field Apt, CO	0	0	0	0	0	0	0	0	0	0.000 2.146
Atlanta Center, GA	0	1	0	0	0	0	0	0	0	N/A N/A
Augusta Rgnl at Bush Field Apt, GA	0	1	0	0	0	1	0	0	2	0.000 3.856
Aurora Muni Apt, IL	0	1	0	0	0	3	2	0	3	1.544 1.687
Austin Straubel Intl, WI	0	1	0	0	0	0	0	0	1	0.531 0.534
Austin-Bergstrom Intl Apt, TX	0	1	0	0	0	0	0	1	3	1.031 0.988
Baltimore-Washington Intl, MD	2	1	0	0	0	0	0	0	0	3.048 1.005
Bangor Intl, ME	0	0	0	0	0	2	0	0	2	0.000 6.823
Bartley Regional Apt, KY	0	0	0	0	0	0	0	0	0	0.740 0.000
Barnstable Muni-Boardman/Polando Field Apt, MA	1	0	0	0	0	0	0	1	1	0.706 0.672
Baton Rouge Metro, Ryan Field Apt, LA	0	0	0	0	0	0	0	0	0	1.422 0.000
Bellingham Intl, WA	0	0	0	0	0	0	0	0	0	1.157 0.000
Beverly Muni Apt, MA	0	0	0	0	0	0	0	0	0	5.130
Birmingham Apt, AL	-1	2	0	0	0	0	0	2	6	3 8
Bishop Intl, MI	0	0	0	0	0	0	0	0	0	0.000 0.684
Blue Grass Apt, KY	0	0	0	0	0	0	0	0	0	0.978 2.318
Boeing Field/King County Intl, WA	2	2	0	0	0	0	0	0	0	0.900 3.349
Boise Air Terminal/Gowen Field Apt, ID	3	5	0	0	0	0	0	0	3	1.695 3 6
Boston TRACON, MA	0	1	0	0	0	0	0	0	0	N/A N/A

Actual Activity Data thru 11/30/1999

Forecast Activity Data 12/01/1999 - 12/31/1999

Rates per 100,000 Operations

**SURFACE INCIDENTS BY AIRPORT**

**12 MONTH COMPARISON**

**JANUARY 1998 - DECEMBER 1998 versus JANUARY 1999 - DECEMBER 1999**

**CAUTION\*: A surface incident may have multiple causal factors and result in multiple reports**

AIRPORT	PILOT DEVIATIONS		SURFACE ERRORS		SURFACE DEVIATIONS		VEHICLE PEDESTRIAN DEVIATION		TOTAL*		RATE		
	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999	
Bowman Field Apt, KY	0	1	0	0	0	0	0	2	0	3	0.000	2.024	
Brackett Field Apt, CA	1	4	0	0	0	0	0	0	1	4	0.466	1.640	
Bradley Intl, CT	1	0	0	0	0	0	1	0	2	0	1.113	0.000	
Brown Field Muni Apt, CA	0	1	0	0	0	0	0	0	0	1	0.000	1.010	
Brunswick NAS, ME	-1	1	0	0	0	0	0	0	1	1	N/A	N/A	
Buchanan Field Apt, CA	0	5	1	0	0	0	0	1	1	6	0.462	2.223	
Buffalo Niagara Intl, NY	0	1	0	0	0	0	0	4	0	5	0.000	3.205	
Burbank-Glendale-Pasadena Apt, CA	-1	0	2	1	0	0	0	1	3	2	1.651	1.125	
Burlington Intl, VT	0	0	1	0	0	0	0	0	1	0	0.849	0.000	
Capital Apt, IL	0	3	0	2	0	0	0	0	0	5	0.000	5.537	
Capital City Apt, MI	0	0	0	0	0	0	0	0	1	0	0.836	0.000	
Centennial Apt, CO	4	4	0	2	1	0	0	0	2	4	1.072	2.065	
Central Illinois Reg'l Apt, IL	2	3	0	1	0	0	0	0	3	5	2.801	6.146	
Charleston AFB/Intl, SC	3	3	1	2	0	0	2	2	2	6	7	5.625	5.099
Charlotte/Douglas Intl, NC	7	3	2	0	0	0	0	0	0	9	3	1.977	0.668
Cherry Capital Apt, MI	1	1	0	0	0	0	0	0	0	1	0.773	0.778	
Chicago Midway Apt, IL	-1	3	4	4	0	0	0	0	0	5	7	1.795	2.382
Chicago Ohare Intl, IL	2	4	4	4	0	0	0	0	3	6	7	0.669	0.781
Chicago TRACON, IL	1	0	0	0	0	0	0	0	0	1	0	N/A	N/A
Chico Muni Apt, CA	1	1	0	0	0	0	0	0	1	1	2.373	2.304	
Chino Apt, CA	0	3	0	2	0	0	2	1	1	7	0.525	4.448	
Cincinnati Muni/Lunken Field Apt, OH	0	1	0	0	0	0	0	0	0	1	0.000	0.825	
Cincinnati/Northern Kentucky Intl, OH	2	0	1	1	0	0	0	0	3	1	0.677	0.214	
City of Colorado Springs Muni Apt, CO	0	1	0	0	0	0	0	0	2	1	0.547	1.256	
Cleveland-Hopkins Intl, OH	7	8	1	1	0	0	0	0	1	8	10	2.593	3.160
Cobb County-Mc Collum Field, GA	-1	0	0	0	0	0	0	0	0	1	0.882	0.994	
Columbia Metro Apt, SC	-1	0	0	0	0	0	0	0	0	2	1.808	0.000	
Columbia Regional Apt, MO	0	0	0	0	0	0	0	0	0	2	0.000	4.876	
Columbus Metro Apt, GA	0	0	0	0	0	0	0	0	1	1	0.000	1.487	
Craig Muni Apt, FL	0	2	1	0	0	0	0	0	0	1	0.736	1.380	
Crystal Apt, MN	4	4	0	0	0	0	0	0	7	4	6.136	4.363	
Cyril E. King Apt, VI	2	1	0	0	0	0	0	0	11	8	1.902	4.848	

Actual Activity Data thru 11/30/1999

Forecast Activity Data 12/01/1999 - 12/31/1999

Rates per 100,000 Operations

**SURFACE INCIDENTS BY AIRPORT**

**12 MONTH COMPARISON**  
**JANUARY 1998 - DECEMBER 1998 versus JANUARY 1999 - DECEMBER 1999**

**CAUTION\*: A surface incident may have multiple causal factors and result in multiple reports**

AIRPORT	PILOT DEVIATIONS		SURFACE ERRORS		SURFACE DEVIATIONS		VEHICLE PEDESTRIAN DEVIATION		TOTAL*		RATE 1998	1999	
	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999			
Dallas Love Field Apt, TX	4	2	1	0	0	0	2	0	7	2	2.953	0.816	
Dallas-Ft. Worth Int'l, TX	2	4	4	3	0	0	0	0	6	7	0.645	0.802	
Danbury Muni Apt, CT	0	2	0	0	0	0	2	0	2	2	1.719	1.698	
Dane County Regional-Truax Field Apt, WI	1	0	0	0	0	0	0	0	1	0	0.691	0.000	
David Wayne Hooks Memorial Apt, TX	0	4	0	0	0	0	0	0	6	0	0.000	3.368	
Daytona Beach Int'l Apt, FL	4	5	0	1	0	0	0	0	4	6	1.308	1.666	
DePaul Apt, IL	0	1	0	0	0	0	0	0	0	1	0.000	1.835	
DeltaB-Peachtree Apt, GA	2	1	0	1	0	0	0	0	5	4	2.189	1.727	
Denver Center, CO	1	1	0	0	0	0	0	0	1	1	N/A	N/A	
Denver Intl, CO	2	2	0	0	0	0	0	2	2	4	0.420	0.598	
Des Moines Int'l, IA	1	3	0	0	0	0	0	1	1	4	0.732	2.979	
Detroit Metro Wayne County Apt, MI	2	1	4	0	0	0	2	1	8	2	1.487	0.361	
Duluth Int'l, MN	0	1	0	0	0	0	3	2	3	3	4.670	4.993	
Dupage Apt, IL	5	4	1	0	0	1	0	3	0	10	4	4.574	2.581
Dutchess County Apt, NY	1	0	0	1	0	0	0	0	2	1	3	0.746	2.269
Eagle County Regional Apt, CO	6	0	0	0	0	0	0	2	0	7	0	23.798	0.000
El Monte Apt, CA	0	0	0	0	0	0	0	0	0	2	0.715	1.372	
El Paso Int'l, TX	1	2	0	0	0	0	0	0	1	1	3.927	0.000	
Elmira-J.C. Harris Field Apt, NY	0	0	0	0	0	0	0	0	0	1	0.000	1.409	
Elmira/Corning Regional Apt, NY	0	0	0	0	0	0	0	0	0	1	0.579	1.597	
Eppley Airfield Apt, NE	0	0	0	0	0	0	0	0	0	1	0	0.000	
Erie Int'l, PA	0	0	0	0	0	0	0	0	0	1	0.286	0.299	
Ernest A. Love Field Apt, AZ	0	0	1	1	0	0	0	0	1	2	0.796	0.894	
Essex County Apt, NJ	1	1	0	0	0	0	0	0	1	2	0.711	3.017	
Fairbanks Int'l, AK	0	2	0	0	0	0	0	0	1	2	5	2.263	1.936
Falcon Field Apt, AZ	-1	2	0	0	0	0	0	0	3	3	0.000	1.884	
Fanning Field Apt, ID	0	0	0	-1	0	0	0	0	1	0	0.000	1.344	
Felts Field Apt, WA	0	0	0	0	0	0	0	0	0	1	0	2.232	0.000
Flagstaff Pulliam Apt, AZ	1	0	0	-1	0	0	0	0	0	1	0	2.845	5.913
Flying Cloud Apt, MN	5	6	0	0	0	0	0	0	0	6	11	0.000	0.874
Fort Wayne Int'l, IN	0	0	0	0	0	0	0	0	0	1	0	0.908	
Fort Worth Meacham Apt, TX	2	0	0	0	0	0	0	0	4	3	1.369	0.908	

Actual Activity Data thru 11/30/1999

Forecast Activity Data 12/01/1999 - 12/31/1999

Rates per 100,000 Operations

SURFACE INCIDENTS BY AIRPORT

12 MONTH COMPARISON

JANUARY 1998 - DECEMBER 1998 versus JANUARY 1999 - DECEMBER 1999

**CAUTION\*: A surface incident may have multiple causal factors and result in multiple reports**

AIRPORT	PILOT DEVIATIONS		SURFACE ERRORS		SURFACE DEVIATIONS		VEHICLE PEDESTRIAN		TOTAL*		RATE		
	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999	
Fort Worth Alliance Apt, TX	3	0	0	0	0	0	0	0	3	0	1.618	0.000	
Four Corners Regional Apt, NM	0	1	0	1	0	0	0	0	0	2	0.000	1.860	
Fresno Yosemite Intl Apt, CA	4	3	0	0	0	0	0	0	4	3	2.307	1.221	
Ft. Lauderdale Executive Apt, FL	2	7	0	0	0	0	8	15	10	22	4.140	8.924	
Ft. Lauderdale/Hollywood Intl, FL	0	3	0	1	0	0	1	0	1	4	0.390	1.431	
Fullerton Muni Apt, CA	1	2	0	0	0	0	0	1	2	2	4	2.117	4.187
Fulton County Apt-Brown Field Apt, GA	1	2	0	0	0	0	0	1	1	3	0.940	2.601	
Gainesville Regional Apt, FL	0	0	0	0	0	0	0	1	0	1	0	1.276	0.000
General Edward Lawrence Logan Intl, MA	3	0	0	2	0	0	1	1	4	3	0.776	0.597	
General Mitchell Intl, WI	12	3	0	2	0	0	3	4	15	9	6.847	4.078	
George Bush Intercontinental Apt, TX	0	0	1	0	0	0	0	1	1	1	0.223	0.000	
Gillespie Field Apt, CA	0	1	0	0	0	0	0	2	0	3	0.000	1.445	
Grand Forks Intl, ND	1	0	1	0	0	0	0	0	2	0	0.937	0.000	
Grand Prairie Muni Apt, TX	3	0	0	0	1	0	0	1	1	2	3.341	0.000	
Grant County Apt, WA	0	0	0	0	0	0	0	0	0	0	0.742	1.572	
Greater Peoria Regional Apt, IL	1	0	0	0	0	0	0	0	1	0	1.062	0.000	
Greater Pittsburgh Intl, PA	2	1	3	1	1	0	0	0	5	2	1.108	0.456	
Greater Rochester Intl, NY	2	1	0	2	0	0	0	2	2	5	1.062	3.196	
Greater Rockford Apt, IL	2	3	0	0	0	0	0	2	4	5	3.675	3.601	
Greenville-Spartanburg Intl Apt, SC	2	1	0	0	0	0	0	0	2	0	3.335	0.000	
Gregg County Apt, TX	0	5	0	0	0	0	0	0	1	1	1.438	1.286	
Groton-New London Apt, CT	2	0	0	0	0	0	0	0	2	5	2.104	5.085	
Gulfport-Biloxi Regional Apt, MS	2	1	0	1	0	0	0	0	6	1	6.148	0.845	
Gwinnett County - Briscoe Field, GA	0	0	0	0	0	0	0	0	0	1	1.850	0.949	
Hagerstown Rgnl-Richard A Henson Field Apt, MD	4	0	0	0	0	0	0	0	4	0	6.738	0.000	
Hartford-Brainard Apt, CT	0	0	0	0	0	0	0	0	0	1	0.000	0.804	
Hawkins Field Apt, MS	0	0	0	0	0	0	0	0	0	1	N/A	N/A	
Hector Intl, ND	1	1	3	1	0	0	0	0	6	0	2.079	1.147	
Honolulu Intl, HI	1	1	3	0	0	0	0	0	7	4	0	0	
Houston Center, TX	0	0	0	3	0	0	0	0	0	1	0	0	
Huntsville Int'l/Carl T. Jones Field Apt, AL	0	0	0	3	0	0	0	0	0	1	1.039	6.986	
Igor I. Sikorsky Memorial Apt, CT	0	1	0	0	0	0	0	0	0	1	0.000	1.079	

Actual Activity Data thru 11/30/1999

Forecast Activity Data 12/01/1999 - 12/31/1999

Rates per 100,000 Operations

SURFACE INCIDENTS BY AIRPORT

12 MONTH COMPARISON

JANUARY 1998 - DECEMBER 1998 versus JANUARY 1999 - DECEMBER 1999

**CAUTION\*: A surface incident may have multiple causal factors and result in multiple reports**

AIRPORT	PILOT DEVIATIONS		SURFACE ERRORS		SURFACE DEVIATIONS		VEHICLE PEDESTRIAN DEVIATION		TOTAL*		RATE	
	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999
Indianapolis Intl, IN	6	2	1	1	0	0	2	1	9	4	3.711	1.590
Jack Northrop Fld-Hawthorne Muni Apt, CA	0	2	0	0	0	0	3	0	5	0	0.000	5.627
Jackson County-Reynolds Field Apt, MI	0	0	0	1	0	0	1	0	2	0	0.000	2.914
Jackson Intl, MS	0	0	0	0	0	0	1	1	1	1	0.913	0.918
Jacksonville Intl, FL	0	0	0	0	0	0	2	0	3	0	1.932	0.000
James M. Cox Dayton Intl, OH	0	3	1	0	0	0	1	2	2	5	1.301	2.041
Jeffco Apt, CO	1	2	0	0	0	0	1	21	2	23	1.223	12.764
Joe Foss Field Apt, SD	1	0	0	0	0	0	2	0	3	0	3.100	0.000
John F Kennedy Intl, NY	3	3	0	2	0	0	2	2	5	7	1.396	1.968
John Wayne-Orange County Apt, CA	5	15	1	1	1	0	0	3	7	19	1.677	4.042
Joplin Regional Apt, MO	1	0	0	0	0	0	0	0	1	0	2.517	0.000
Kahului Apt, HI	1	0	0	0	0	0	0	1	0	3	0	1.659
Kalamazoo/Battle Creek Intl, MI	1	1	0	0	0	0	0	0	1	0	0.000	N/A
Kansas City Center, MO	1	1	0	0	0	0	0	0	1	1	0.693	0.688
Kansas City Downtown Apt, MO	1	1	1	1	0	0	0	0	0	2	0.000	0.910
Kansas City Intl, MO	0	1	1	1	0	0	0	0	1	0	1.336	2.856
Kenai Muni Apt, AK	1	1	0	0	0	0	0	0	0	1	0	1.269
Kenosha Rgnl Airport, WI	1	1	0	0	0	0	0	0	0	1	0	5.038
Key West Intl, FL	6	6	0	0	0	0	0	0	6	0	0.872	0.753
Kissimmee Muni Apt, FL	1	1	0	2	0	0	1	2	4	2	1.108	0.273
La Guardia Apt, NY	1	0	2	0	0	0	4	0	4	4	N/A	N/A
Lake Hood SPB, AK	0	0	0	0	0	0	0	0	0	3	1.714	1.643
Lakefront Apt, LA	2	3	0	0	0	0	0	1	2	4	0.993	1.851
Lakeland Linder Regional Apt, FL	2	3	0	2	2	0	6	5	16	14	3.177	2.600
Lambert-St. Louis Intl, MO	5	7	3	2	2	0	0	0	2	1	1.819	0.957
Lancaster Apt, PA	2	1	0	0	0	0	1	0	1	0	1.345	0.000
Laredo Intl, TX	0	0	0	0	0	0	0	0	1	0	N/A	0.000
Laughlin/Bullhead Intl Apt, AZ	1	0	0	0	0	0	0	0	1	4	1.091	2.095
Laurence G. Hanscom Field Apt, MA	1	0	0	0	3	0	1	0	2	0	2.121	0.000
Lawrence Muni Apt, MA	0	2	0	0	0	0	0	0	0	2	0.000	1.354
Lehigh Valley Intl, PA	0	1	0	1	0	0	0	0	0	1	4.854	6.419
Lincoln Muni Apt, NE	4	5	0	0	0	0	0	0	6	7	0	0

Actual Activity Data thru 11/30/1999

Forecast Activity Data 12/01/1999 - 12/31/1999

Rates per 100,000 Operations

SURFACE INCIDENTS BY AIRPORT

12 MONTH COMPARISON

JANUARY 1998 - DECEMBER 1998 versus JANUARY 1999 - DECEMBER 1999

**CAUTION\*: A surface incident may have multiple causal factors and result in multiple reports**

AIRPORT	PILOT DEVIATIONS		SURFACE ERRORS		SURFACE DEVIATIONS		VEHICLE PEDESTRIAN DEVIATION		TOTAL*		RATE 1999
	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999	
Long Beach/Daugherty Field Apt, CA	14	14	0	1	2	0	7	0	23	15	4.877
Long Island Mac Arthur Apt, NY	0	1	0	0	0	0	0	0	0	1	0.000
Los Angeles Intl, CA	14	14	1	2	1	0	1	1	17	17	2.203
Louisville Intl-Standiford Field Apt, KY	0	0	0	0	0	0	2	0	2	0	0.000
Lovell Field Apt, TN	1	0	0	0	0	0	1	0	2	0	2.103
Lubbock Intl, TX	0	0	0	0	0	0	0	1	0	1	0.000
Luis Munoz Marin Intl, PR	1	6	-1	1	0	0	7	7	9	14	4.534
Mahlon Sweet Field Apt, OR	2	5	0	0	0	0	0	0	2	5	1.845
Manassas Rgnl/Harry P. Davis Field Apt, VA	0	2	0	0	0	0	1	1	1	3	0.771
Manchester Apt, NH	0	1	0	0	1	0	1	0	2	2	1.838
Mansfield Lahm Muni Apt, OH	0	0	0	0	0	0	0	0	1	1	0.000
Martha's Vineyard Apt, MA	0	1	0	0	0	0	0	0	0	1	0.000
Mc Carran Intl, NV	13	6	-1	0	0	0	0	0	14	6	2.974
Mc Ghee Tyson Apt, TN	4	2	0	0	0	0	0	0	4	2	2.693
Mc Kellar-Sipes Regional Apt, TN	0	1	0	0	0	0	0	0	0	1	0.000
McNary Field Apt, OR	0	1	0	0	0	0	0	0	0	2	0.000
Meadows Field Apt, CA	0	0	1	0	0	0	0	0	0	0	1.253
Melbourne Regional Apt, FL	0	3	0	0	0	0	0	0	0	3	0.000
Memphis Intl, TN	2	2	2	0	0	0	0	0	4	2	1.097
Merrill C. Meigs Apt, IL	0	1	0	0	0	0	0	0	0	1	0.000
Merrill Field Apt, AK	2	2	0	0	0	0	0	0	19	27	9.178
Metropolitan Oakland Intl, CA	1	1	0	-1	0	0	0	0	1	2	0.197
Miami Intl, FL	0	1	1	0	0	0	0	3	1	4	0.187
Michigan Rgnl Transportation Ctr Apt, IN	0	0	0	0	0	0	2	2	2	3	2.372
Mid Delta Rgnl, MS	1	0	0	0	0	0	0	0	0	1	0
Middle Georgia Regional Apt, GA	1	0	0	0	0	0	0	0	1	2	1.536
Minneapolis Center, MN	1	1	0	0	0	0	0	0	0	1	0.391
Minneapolis-St. Paul Intl/World Chamberlain Apt, MN	0	5	2	-1	0	0	0	5	3	11	0.828
Missoula Intl, MT	2	0	0	0	0	0	0	0	0	2	0

Actual Activity Data thru 11/30/1999

Forecast Activity Data 12/01/1999 - 12/31/1999

Rates per 100,000 Operations

SURFACE INCIDENTS BY AIRPORT

12 MONTH COMPARISON

JANUARY 1998 - DECEMBER 1998 versus JANUARY 1999 - DECEMBER 1999

*CAUTION\*: A surface incident may have multiple causal factors and result in multiple reports*

AIRPORT	PILOT DEVIATIONS		SURFACE ERRORS		SURFACE DEVIATIONS		VEHICLE PEDESTRIAN DEVIATION		TOTAL*		RATE	
	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999
Mobile Downtown, AL	1	0	0	0	0	0	0	0	1	0	1.149	0.000
Mobile Regional Arpt, AL	0	0	0	0	0	0	2	0	2	0.000	1.312	
Monroe Regional Arpt, LA	3	2	0	0	0	0	3	0	6	2	8.946	3.201
Monterey Peninsula Arpt, CA	0	1	1	0	0	0	0	0	1	1	1.026	0.934
Montgomery Field Arpt, CA	4	9	1	0	0	0	2	2	14	7	25	9.351
Montgomery Rgnl (Dannelly Field) Arpt, AL	0	1	0	0	0	0	0	1	0	1	1	1.122
Morristown Muni Arpt, NJ	2	0	0	0	0	0	0	0	2	0	0.764	0.000
Muskegon County Arpt, MI	1	0	0	0	0	0	0	0	1	0	1.115	0.000
Myrtle Beach Intl, SC	0	3	0	0	0	0	0	0	1	0	4	0.000
Napa County Arpt, CA	0	1	0	0	0	0	0	0	1	0	2	0.644
Naples Muni Arpt, FL	2	5	1	0	0	0	0	0	0	3	4	3.445
Nashville Intl, TN	0	0	0	0	0	0	0	0	0	1	0.000	2.042
Natrona County Intl, WY	0	0	0	0	0	0	0	0	0	1	0	0.278
New Castle County Arpt, DE	0	1	0	0	0	0	0	0	0	1	0.000	0.747
New Hanover Intl, NC	2	3	1	0	0	0	0	0	0	3	3	4.216
New York TRACON, NY	0	1	0	0	0	0	0	0	0	1	N/A	N/A
Newark Intl, NJ	6	3	1	0	0	0	0	0	5	1	12	6.297
Niagara Falls Intl, NY	0	0	0	0	0	0	0	0	0	2	0	4.023
Norfolk Intl, VA	0	1	0	0	0	0	0	0	0	0	1	0.704
North Las Vegas Arpt, NV	6	4	0	0	0	0	0	0	1	0	4	2.655
North Perry Arpt, FL	2	0	0	0	0	0	0	0	0	0	0	1.261
Northwest Philadelphia Arpt, PA	0	0	0	0	0	0	0	0	0	1	0	0.489
Norwood Memorial Arpt, MA	1	1	0	0	0	0	0	0	0	1	1	0.918
Oakland County Intl Arpt, MI	2	0	0	0	0	0	0	0	0	2	0	0.601
Ogden-Hinckley Arpt, UT	1	0	0	0	0	0	0	0	1	5	1	3.449
Ontario Intl, CA	2	0	2	0	0	0	0	0	2	1	3	0.968
Opa Locka Arpt, FL	1	1	0	1	1	0	0	0	0	3	2	4.992
Orlando Executive Arpt, FL	1	1	1	1	0	0	0	0	3	2	4	1.367
Orlando Intl, FL	0	1	0	0	0	0	0	0	1	2	1	3.274
Orlando Sanford Arpt, FL	6	3	0	1	0	0	0	0	3	0	4	2.363
Outagamie County Rgnl Arpt, WI	0	0	3	0	0	0	0	0	0	0	3	0.000
Paget Field Arpt, FL	1	0	0	0	0	0	0	0	1	2	2	4.851
											2	2.469
												2.999

Actual Activity Data thru 11/30/1999

Forecast Activity Data 12/01/1999 - 12/31/1999

Rates per 100,000 Operations

SURFACE INCIDENTS BY AIRPORT

12 MONTH COMPARISON

JANUARY 1998 - DECEMBER 1998 versus JANUARY 1999 - DECEMBER 1999  
*CAUTION\*: A surface incident may have multiple causal factors and result in multiple reports*

AIRPORT	PILOT DEVIATIONS		SURFACE ERRORS		SURFACE DEVIATIONS		VEHICLE PEDESTRIAN DEVIATION		TOTAL*		RATE
	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999	
Palm Beach Intl, FL	6	8	2	0	0	0	0	0	8	8	4.121 4.003
Palm Springs Intl, CA	0	7	0	1	0	0	0	0	0	8	0.000 7.856
Palo Alto of Santa Clara County Apt, CA	0	0	0	0	0	0	1	2	1	2	0.528 0.494
Palwaukee Muni Apt, IL	5	0	0	0	0	0	0	2	1	7	1 3.675 0.595
Panama City-Bay County Intl Apt, FL	3	0	0	0	0	0	0	0	1	3	1 2.849 1.062
Pensacola Regional Apt, FL	0	0	0	1	0	0	0	0	0	1	0 0.000 0.808
Philadelphia Intl, PA	3	0	-1	-1	0	0	0	-1	1	5	2 1.065 0.420
Phoenix Sky Harbor Intl, AZ	17	8	0	1	0	0	3	0	20	9	3.776 1.781
Phoenix-Dear Valley Muni Apt, AZ	5	5	-1	0	0	0	1	1	7	6	2.488 2.141
Piedmont/Triad Intl, NC	0	1	0	0	0	0	0	2	0	3	0 0.000 2.245
Port Columbus Intl, OH	0	2	0	0	0	0	0	0	0	2	0 0.000 0.894
Portland Intl Jetport Apt, ME	-1	1	0	0	0	0	0	0	1	4	0 0.781 3.221
Portland Intl, OR	0	1	1	0	0	0	0	1	1	2	0 0.307 0.314
Portland-Hillsboro Apt, OR	2	1	0	0	0	0	0	0	3	1	0 1.298 0.000
Portland-TROUTDALE Apt, OR	0	1	0	0	0	0	0	0	0	3	0 0.000 3.920
Purdue University Apt, IN	-1	-1	0	0	0	0	0	0	1	1	0 0.586 0.711
Quincy Muni Baldwin Field Apt, IL	-1	0	0	0	0	0	0	4	0	0	N/A N/A
Raleigh-Durham Intl, NC	1	7	0	1	0	0	0	0	5	8	1.935 2.832
Ralph Wien Memorial Apt, AK	0	0	0	2	0	0	0	0	1	0	N/A N/A
Reading Regional/Carl A. Spaatz Field Apt, PA	0	1	0	0	0	0	1	4	1	7	0.680 5.199
Reading Muni Apt, CA	1	0	0	0	0	0	2	1	3	1	4.071 1.217
Reid-Hillview of Santa Clara County Apt, CA	0	1	0	0	0	0	0	0	0	1	0 0.000 0.474
Reno/Tahoe Intl, NV	3	28	0	0	0	0	1	4	5	33	3.212 20.223
Renton Muni Apt, WA	0	0	0	0	0	0	2	0	2	1	1.986 0.915
Republic Apt, NY	0	5	0	0	0	0	2	0	2	5	0.834 2.129
Richard Lloyd Jones Jr. Apt, OK	3	3	0	0	0	0	0	0	10	5	13 1.831 4.648
Richmond Intl, VA	4	5	0	0	0	0	1	0	1	6	6 4.247 4.626
Riverside Muni Apt, CA	1	0	0	0	0	0	2	0	3	0	4.212 0.000
Roanoke Regional/Woodrum Field Apt, VA	8	3	0	0	0	0	1	0	3	0	4.426 0.000
Rochester Intl Apt, MN	0	0	2	0	0	0	0	0	0	3	0 0.000 3.296
Rock County Apt, WI	0	3	1	0	0	0	0	1	0	3	0 0.956 0.901
Ronald Reagan Washington National Apt, DC	3	1	0	0	0	0	0	0	1	3	0 0.956 0.901

Actual Activity Data thru 11/30/1999

Forecast Activity Data 12/01/1999 - 12/31/1999

Rates per 100,000 Operations

SURFACE INCIDENTS BY AIRPORT

12 MONTH COMPARISON

JANUARY 1998 - DECEMBER 1998 versus JANUARY 1999 - DECEMBER 1999

**CAUTION\***: A surface incident may have multiple causal factors and result in multiple reports

AIRPORT	PILOT DEVIATIONS		SURFACE ERRORS		SURFACE DEVIATIONS		VEHICLE PEDESTRIAN DEVIATION		TOTAL*		RATE 1999
	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999	
Salinas Muni Apt, CA	0	0	0	0	0	0	0	1	0	1	0.000
Salt Lake City Int'l, UT	1	3	0	1	0	2	1	0	2	6	0.547
Salt Lake City TRACON, UT	1	1	0	0	0	0	0	0	1	1	N/A
San Antonio Intl, TX	5	8	0	0	0	0	0	0	2	5	1.829
San Diego Intl-Lindbergh Field Apt, CA	0	2	0	1	0	2	1	0	1	5	0.448
San Francisco Intl, CA	7	7	3	3	1	3	1	8	12	21	2.777
San Jose Intl, CA	7	9	2	1	1	2	1	0	11	12	3.848
Santa Barbara Muni Apt, CA	2	4	1	1	0	0	1	1	4	6	2.480
Santa Monica Muni Apt, CA	0	1	0	0	0	0	2	0	2	9	0.919
Savannah Int'l, GA	2	0	2	0	0	0	0	3	1	7	1
Scottsdale Apt, AZ	0	0	0	0	0	0	0	0	0	0	0.000
Seattle-Tacoma Int'l, WA	0	6	1	1	0	0	0	0	3	1	10
Sioux Gateway Apt, IA	0	0	0	0	0	0	0	1	0	2	0.000
Smyrna Apt, TN	1	0	0	0	0	0	0	0	0	1	0.462
Snohomish County (Payne Field) Apt, WA	2	0	1	0	0	0	0	0	1	2	1.038
Southeast Texas Rgnl, TX	0	1	0	0	0	0	0	0	0	1	1.747
Springfield-Branson Rgnl Apt, MO	1	2	0	0	0	0	0	0	1	2	0.000
St. Louis Downtown-Parks Apt, IL	2	1	0	0	0	0	0	0	0	4	0.000
St. Lucie County Int'l, FL	0	2	0	0	0	0	0	0	0	2	0.000
St. Paul Downtown Holman Field Apt, MN	0	0	0	0	0	0	0	0	1	1	0.000
St. Petersburg/Clearwater Int'l, FL	0	1	0	0	0	0	0	0	0	1	0.000
Stewart Int'l, NY	0	1	0	0	0	0	0	0	0	1	0.620
Syracuse Hancock Int'l, NY	3	1	1	0	0	0	0	0	1	2	0.893
Tallahassee Rgnl Apt, FL	-1	2	0	0	0	0	0	0	2	5	1.673
Tampa Int'l, FL	-1	3	0	0	0	0	0	0	1	4	0.000
Terre Haute Int'l, IN	0	3	0	0	0	0	0	0	1	0	7.121
Teterboro Apt, NJ	1	2	1	1	0	0	0	0	3	2	6
The Eastern Iowa Apt, IA	-1	0	0	1	0	0	0	0	2	3	2.423
The William B Hartsfield Atlanta Int'l, GA	0	3	2	2	0	0	0	0	2	8	3.595

Actual Activity Data thru 11/30/1999

Forecast Activity Data 12/01/1999 - 12/31/1999

Rates per 100,000 Operations

SURFACE INCIDENTS BY AIRPORT

12 MONTH COMPARISON

JANUARY 1998 - DECEMBER 1998 versus JANUARY 1999 - DECEMBER 1999  
*CAUTION\*: A surface incident may have multiple causal factors and result in multiple reports*

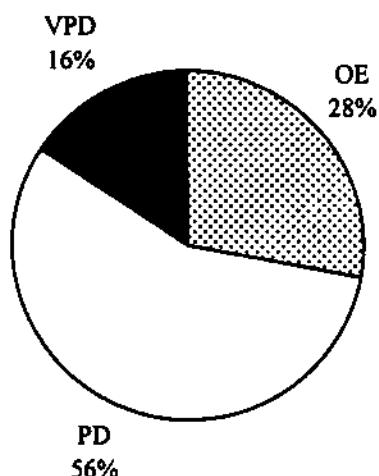
AIRPORT	PILOT DEVIATIONS		SURFACE ERRORS		SURFACE DEVIATIONS		VEHICLE PEDESTRIAN DEVIATION		TOTAL*		RATE 1999
	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999	
Theodore Francis Green State Apt, RI	0	8	2	0	0	0	1	3	3	11	1.923
Toledo Express Apt, OH	0	2	0	0	0	0	2	0	2	2	1.839
Tompkins County Apt, NY	0	0	0	0	0	0	0	2	0	2	0.000
Trenton Mercer Apt, NJ	1	0	0	0	0	0	0	0	1	0	0.823
Tri-Cities Apt, WA	3	2	0	1	0	0	0	0	3	3	3.397
Tri-City Reg'l Apt, TN	0	0	0	0	0	0	3	0	3	0	3.462
Tucson Intl, AZ	2	0	0	0	0	0	0	1	2	1	0.750
Tulsa Intl, OK	2	1	0	0	0	0	1	0	3	1	1.437
Tuscaloosa Muni Apt, AL	0	0	0	0	0	0	0	1	0	1	0.497
Tweed-New Haven Apt, CT	0	1	0	0	0	0	0	1	0	1	0.000
Tyler Pounds Field Apt, TX	0	0	0	0	0	0	0	1	0	1	1.793
University Of Illinois Willard Apt, IL	1	0	0	0	0	0	0	1	0	1	N/A
Unknown/Not Reported	1	1	1	0	0	0	0	0	0	1	0.000
Valdosta Rgnl Apt, GA	0	2	0	0	0	0	0	1	3	1	0.544
Van Nuys Apt, CA	2	0	0	0	0	0	0	2	0	2	N/A
Vandenberg AFB, CA	2	0	0	0	0	0	0	1	2	2	0.920
Vero Beach Muni Apt, FL	1	0	1	1	0	0	1	1	2	2	0.944
Warren Robins AFB, GA	0	5	0	0	0	0	0	0	0	5	N/A
Washington Dulles Intl, DC	3	5	1	0	0	0	0	0	3	0	3.705
Waterloo Muni Apt, IA	0	2	0	0	0	0	0	1	0	1	N/A
Westchester County Apt, NY	0	1	0	0	0	0	0	1	0	1	0.000
Whiteman Apt, CA	0	0	0	0	0	0	0	2	0	2	1.071
Wichita Mid-Continent, KS	3	1	0	0	0	0	0	1	3	2	0.928
Wiley Post Apt, OK	2	0	0	0	0	0	0	1	2	1	2.130
Will Rogers World Apt, OK	0	2	0	0	0	0	0	1	0	4	0.000
William P. Hobby Apt, TX	3	2	0	1	0	0	0	0	3	3	2.449
Willow Run Apt, MI	2	3	0	1	0	0	0	5	6	10	5.396
Wittman Regional Apt, WI	0	2	0	0	0	0	0	0	0	3	1.158
Wood County/Gill Robb Wilson Field Apt, WV	0	0	0	0	0	0	0	0	0	0	0.000
Yakima Air Terminal/Mcallister Field Apt, WA	0	1	0	0	0	0	0	0	1	1	1.764
Youngstown Muni Apt, OH	-1	3	1	0	0	0	0	1	2	3	2.726
Zamparini Field Apt, CA	0	1	0	0	0	0	2	0	1	1	0.495
Total	453	547	96	92	21	18	262	402	832	1059	1.592

**RUNWAY INCURSIONS  
BY TYPE AND MONTH  
1998 - 1999**

1998

MONTH	Incident Type			TOTAL
	OE	PD	VPD	
January	7	12	5	24
February	4	15	1	20
March	9	14		23
April	6	18	2	26
May	5	12	5	22
June	16	9	7	32
July	5	14	4	23
August	9	14	5	28
September	7	24	7	38
October	7	17	6	30
November	11	19	6	36
December	5	15	3	23
<b>TOTAL</b>	<b>91</b>	<b>183</b>	<b>51</b>	<b>325</b>

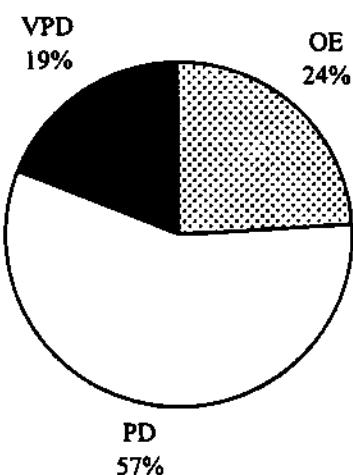
1998



1999

MONTH	Incident Type			TOTAL
	OE	PD	VPD	
January	8	17	4	29
February	7	9	5	21
March	3	8	6	17
April	4	15	3	22
May	8	18	3	29
June	7	12	9	28
July	7	23	9	39
August	7	13	3	23
September	8	17	8	33
October	7	13	4	24
November	7	15	3	25
December	5	22	4	31
<b>TOTAL</b>	<b>78</b>	<b>182</b>	<b>61</b>	<b>321</b>

1999



Runway incursion data is based on preliminary reports and is subject to change following a final investigation.  
Source: Runway Safety Program Office, ATP-20

**RUNWAY INCURSIONS  
BY TYPE AND RATE  
1998 - 1999**

Operations in Millions

1998

<b>Region</b>	<b>OE</b>	<b>PD</b>	<b>VPD</b>	<b>TOTAL</b>	<b>OPERATIONS</b>	<b>RATE</b>
AAL	2	0	5	7	1.1	6.36
ACE	4	7	3	14	2.6	5.38
AEA	11	33	8	52	8.7	5.98
AGL	21	29	9	59	11.0	5.36
ANE	4	7	2	13	2.9	4.48
ANM	4	10	5	19	5.6	3.39
ASO	16	31	5	52	13.0	4.00
ASW	9	17	4	30	8.0	3.75
AWP	20	49	10	79	14.2	5.56
Total	91	183	51	325	66.2	4.91

1999

<b>Region</b>	<b>OE</b>	<b>PD</b>	<b>VPD</b>	<b>TOTAL</b>	<b>OPERATIONS</b>	<b>RATE</b>
AAL	0	1	1	2	1.05	1.90
ACE	4	9	3	16	2.71	5.90
AEA	12	14	6	32	8.84	3.62
AGL	16	27	13	56	10.21	5.48
ANE	4	7	4	15	2.99	5.02
ANM	7	14	2	23	6.17	3.73
ASO	14	37	10	61	13.57	4.50
ASW	6	20	8	34	8.06	4.22
AWP	15	53	14	82	15.13	5.42
Total	78	182	61	321	68.73	4.67

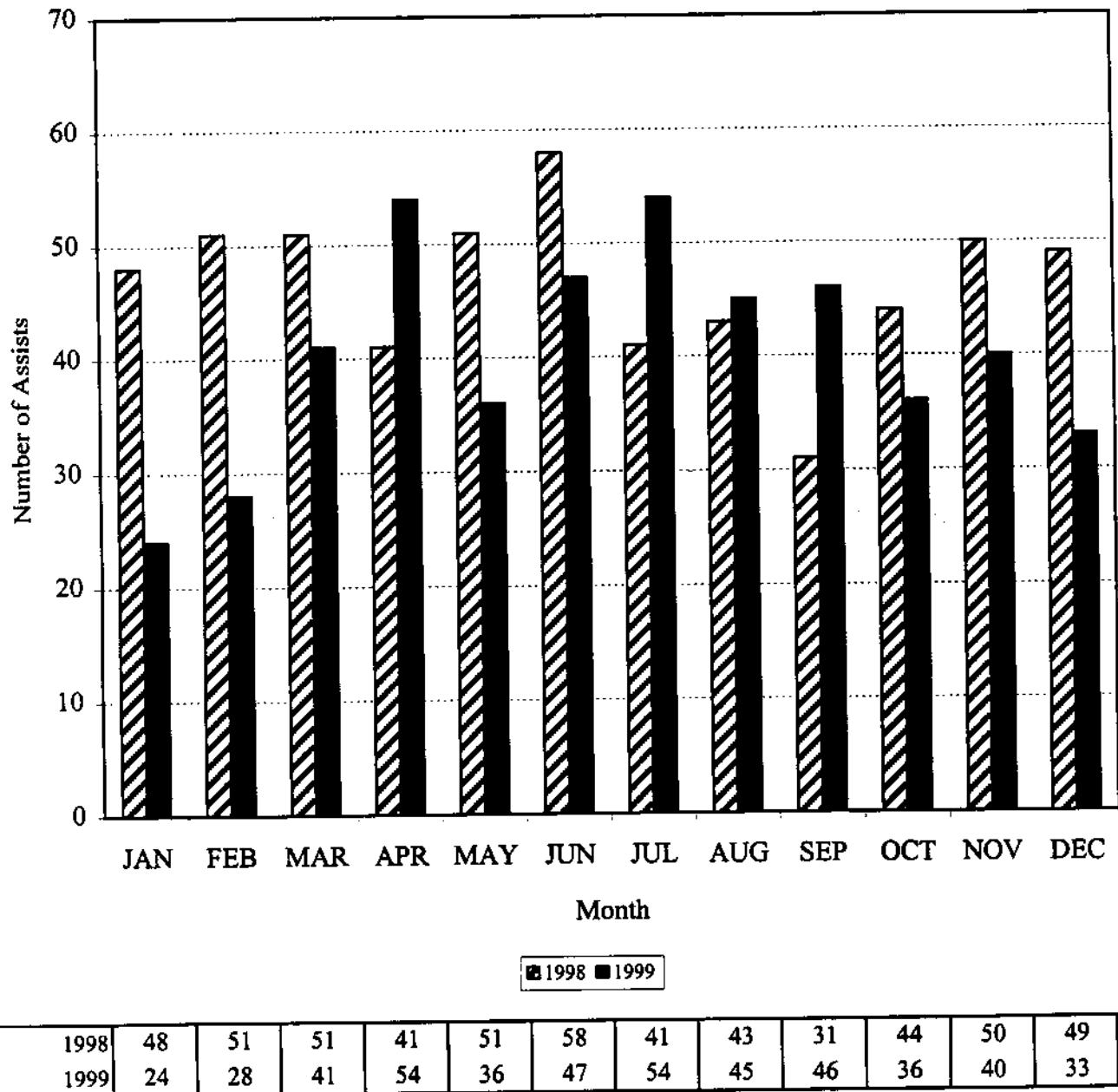
Runway incursion data is based on preliminary reports and is subject to change following a final investigation.  
Source: Runway Safety Program Office, ATP-20

## **FLIGHT ASSISTS\***

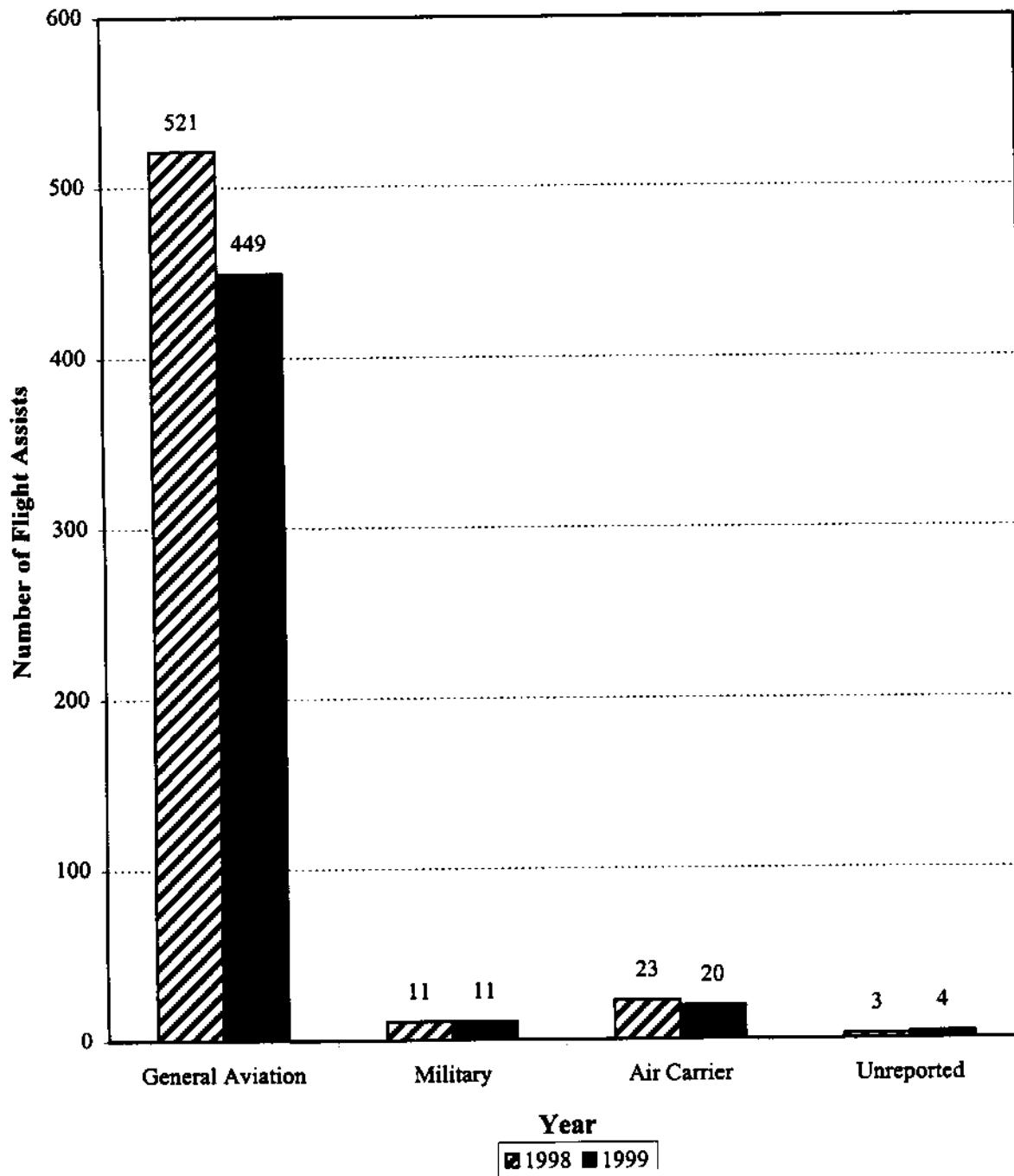
**\*Flight Assists may require 90 days to stabilize; therefore, care should be exercised in making statistical comparisons for the most recent 90-day period.  
Data are preliminary and subject to change.**

## Flight Assists by Month

1998 versus 1999

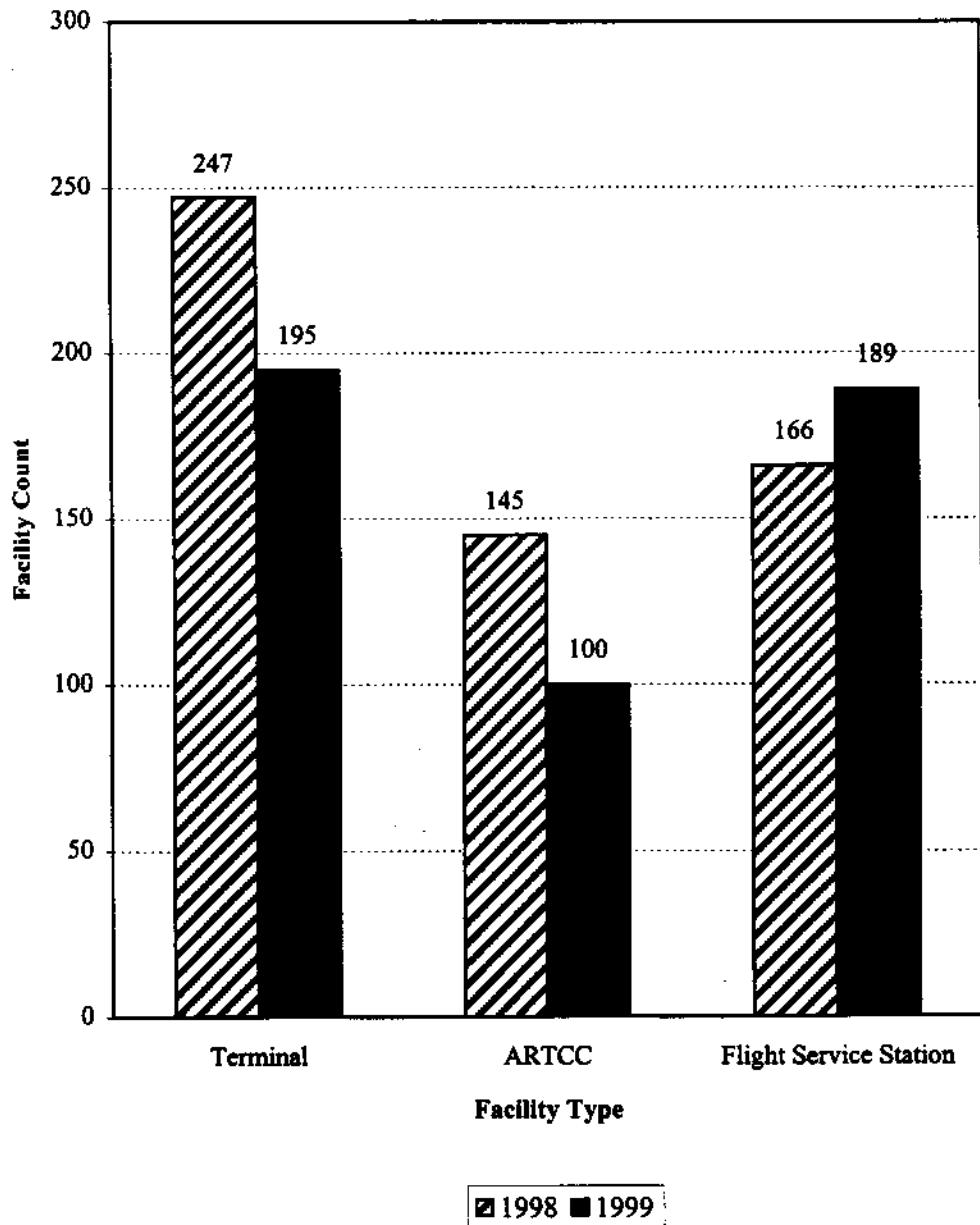


## Flight Assists By Operator Type 1998 versus 1999



## **Flight Assists by Facility Type**

**1998 versus 1999**

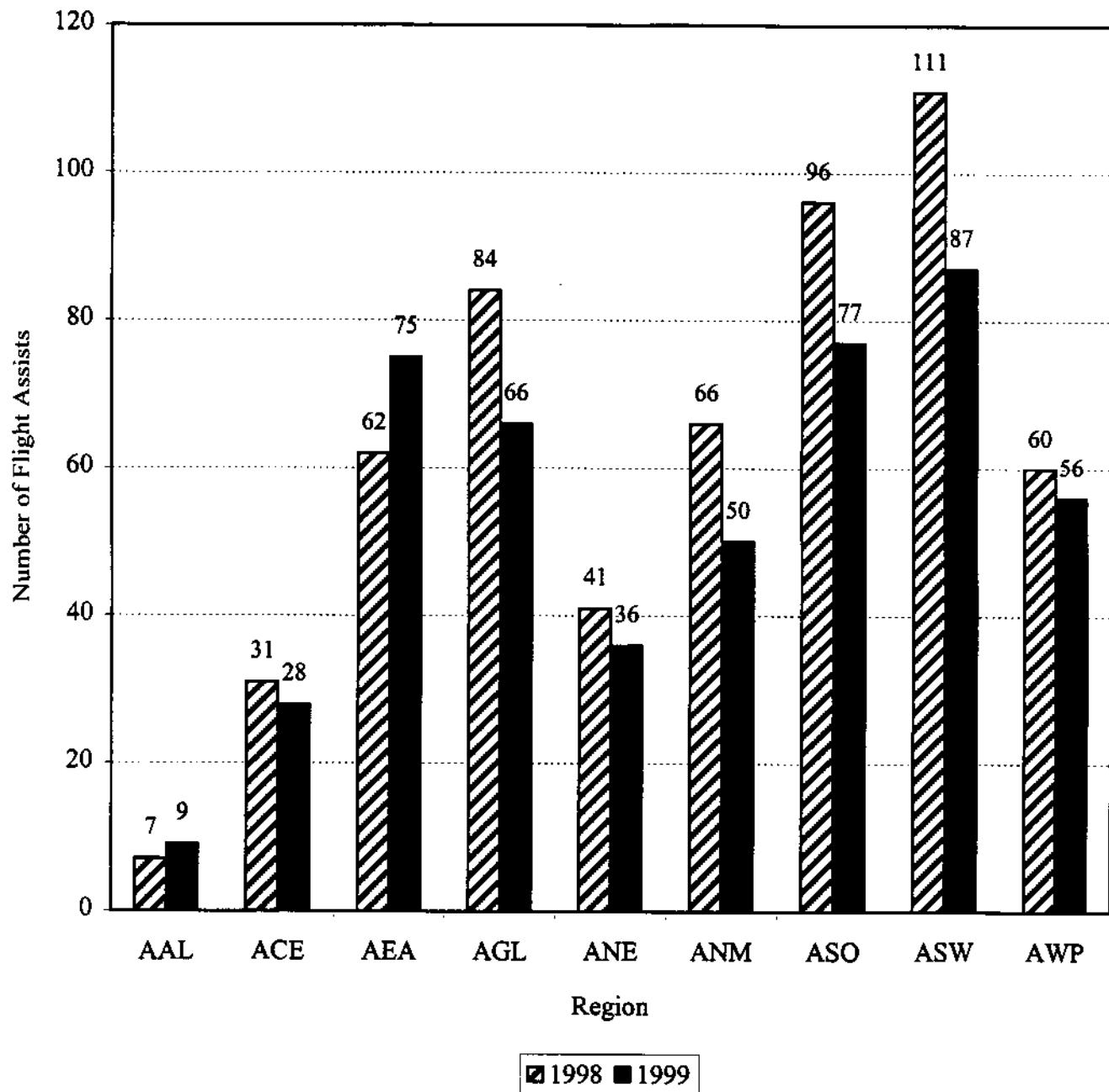


**Flight Assists by Facility**  
**12 Month Comparison (1999 Ranking)**

Facility Name	ID	1998	1999
New York TRACON, NY	N90	22	23
Montgomery County Arpt, TX	CXO	13	20
Atlanta Center, GA	ZTL	21	14
Ernest A. Love Field Arpt, AZ	PRC	11	12
Fort Worth Meacham Arpt, TX	FTW	18	11
Austin Straubel Intl, WI	GRB	6	9
Los Angeles Center, CA	ZLA	3	9
Altoona-Blair County Arpt, PA	AOO	5	8
Denver Intl, CO	DEN	7	8
Manchester Arpt, NH	MHT	7	8
Mc Alester Regional Arpt, OK	MLC	6	8
Riverside Muni Arpt, CA	RAL	4	8
Houston Center, TX	ZHU	7	8
Wichita Mid-Continent, KS	ICT	5	7
Princeton Muni Arpt, MN	PNM	7	7
Albuquerque Center, NM	ZAB	6	7
Fort Worth Center, TX	ZFW	8	7
Seattle Center, WA	ZSE	10	7
Bradley Intl, CT	BDL	2	6
Seattle-Tacoma Intl, WA	SEA	3	6
Cleveland Center, OH	ZOB	7	6
Cedar City Rgnl Arpt, UT	CDC	4	5
Danbury Muni Arpt, CT	DXR	6	5
Kenai Muni Arpt, AK	ENA	4	5
Macon RAPCON, GA	M87	0	5
St. Petersburg/Clearwater Intl, FL	PIE	2	5
Memphis Center, TN	ZME	8	5
Oakland Center, CA	ZOA	10	5

## Flight Assists By Region

1998 versus 1999

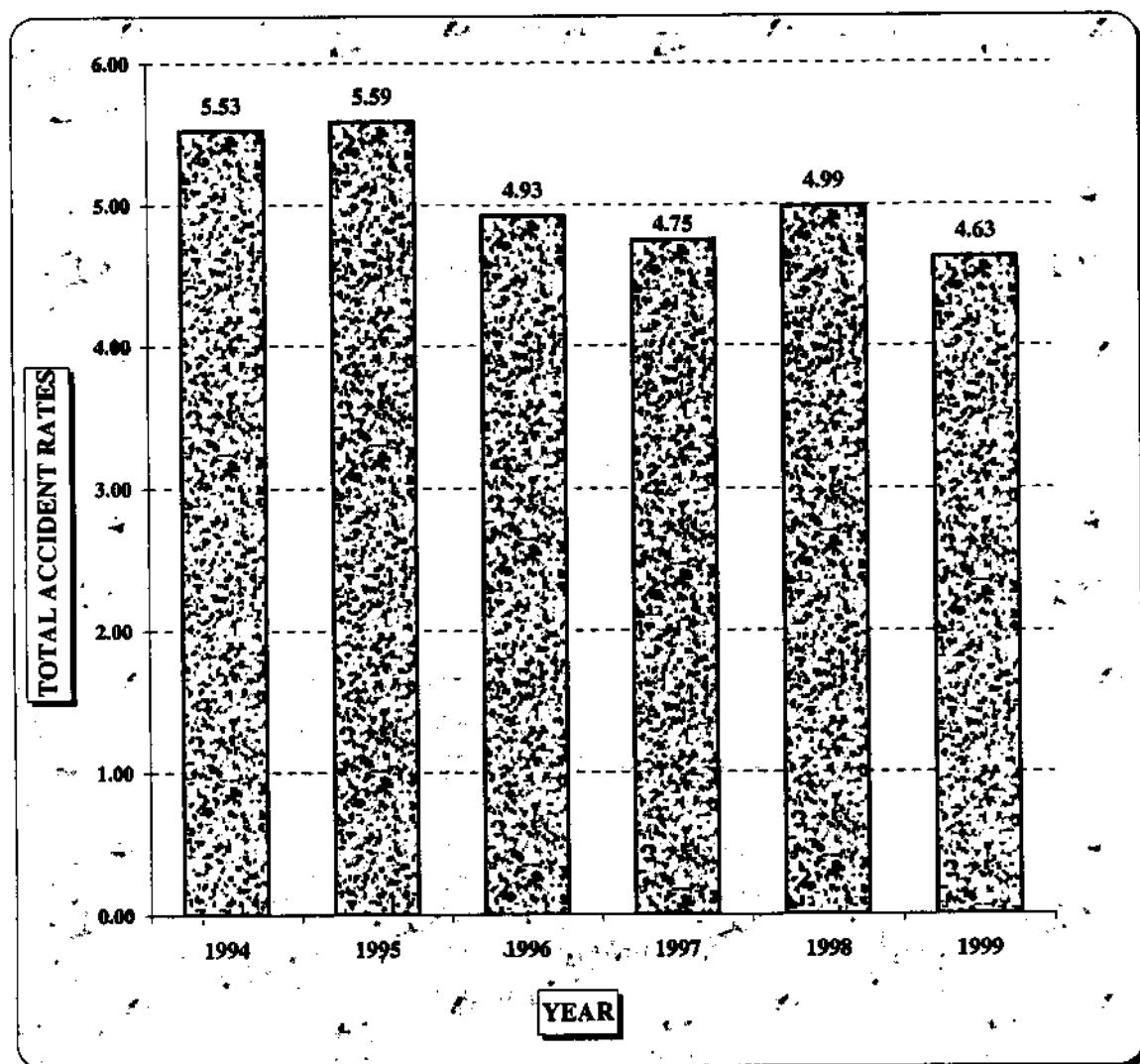


## **ACCIDENT DATA\***

\*An aircraft accident is defined by the National Transportation Safety Board as "an occurrence associated with the operation of an aircraft which takes place between the time any person boards the aircraft with the intention of flight until all such persons have disembarked, and in which any person suffers death or serious injury as a result of being in or upon the aircraft or by direct contact with the aircraft or anything attached thereto, or in which the aircraft receives substantial damage." Data are preliminary and subject to change.

## TOTAL SYSTEM ACCIDENT DATA

1994 through 1999



YEAR	HOURS FLOWN	ACCIDENTS			ACCIDENT RATE	
		TOTAL	FATAL	FATALITIES	TOTAL	FATAL
1994	39,997,444	2,112	436	1052	5.28	1.09
1995	42,746,123	2,176	441	963	5.09	1.03
1996	43,412,867	2,047	395	1089	4.72	0.91
1997	44,534,873	2,000	377	736	4.49	0.85
1998	46,533,828	2,044	384	672	4.39	0.83
1999	47,586,000	2,049	361	690	4.31	0.76

Data Source: NTSB

Rates are per 100,000 hours flown

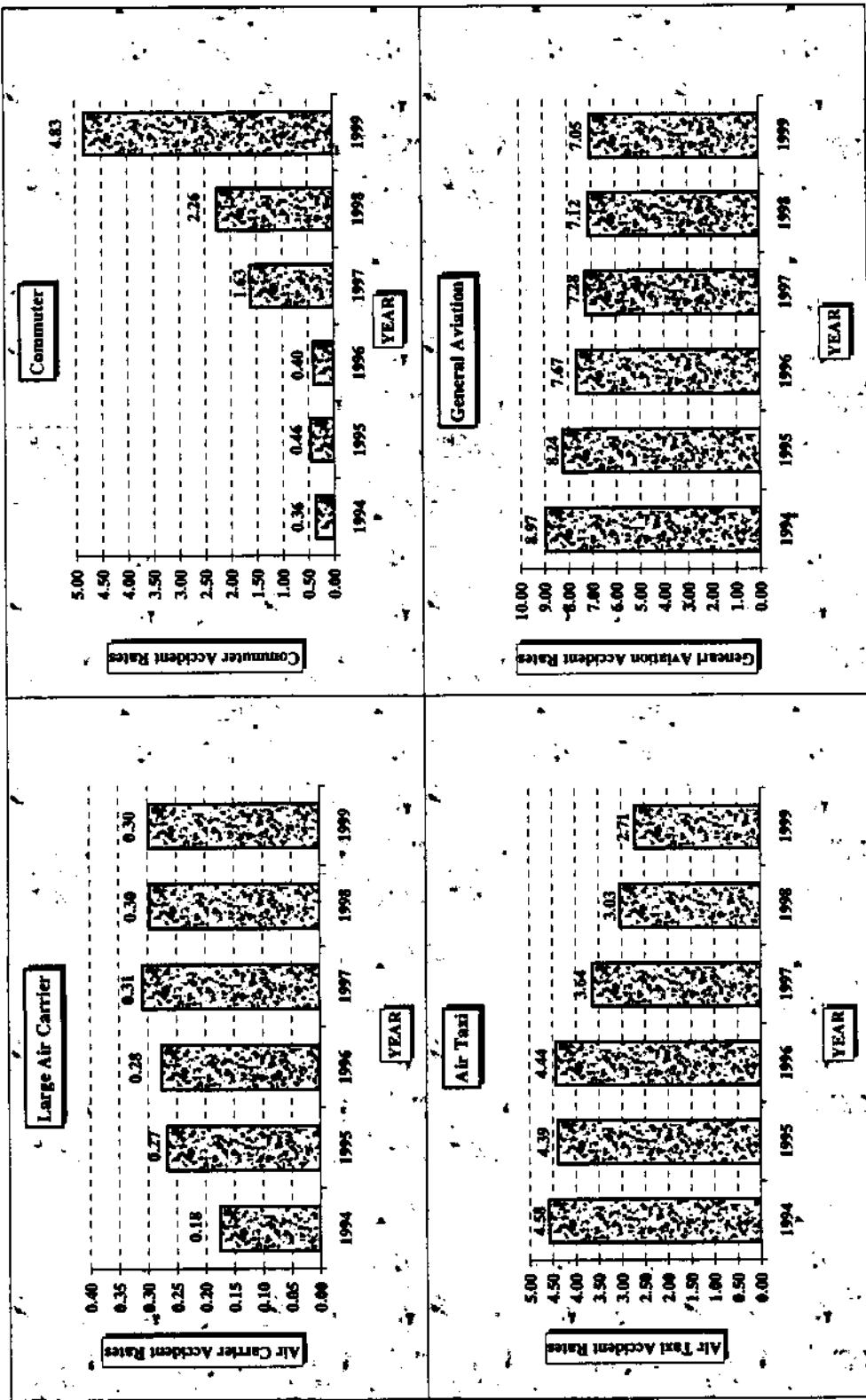
## TOTAL SYSTEM ACCIDENT DATA BY SEGMENT

Segment	YEAR	FLIGHT HOURS	TOTAL	ACCIDENTS		ACCIDENT RATE	
				FATAL	FATALITIES	TOTAL	FATAL
Large Air Carrier	1994	13,124,315	23	4	239	0.175	0.030
	1995	13,505,257	36	3	168	0.267	0.022
	1996	13,746,112	38	5	380	0.276	0.036
	1997	15,838,109	49	4	8	0.309	0.025
	1998	16,846,063	50	1	1	0.297	0.006
	1999	17,428,000	52	2	12	0.298	0.011
Commuter	1994	2,784,129	10	3	25	0.359	0.108
	1995	2,627,866	12	2	9	0.457	0.076
	1996	2,756,755	11	1	14	0.399	0.036
	1997	982,764	16	5	46	1.628	0.509
	1998	353,765	8	0	0	2.261	0.000
	1999	269,000	13	5	12	4.833	1.859
Air Taxi	1994	1,854,000	85	26	63	4.585	1.402
	1995	1,707,000	75	24	52	4.394	1.406
	1996	2,029,000	90	29	63	4.436	1.429
	1997	2,250,000	82	15	39	3.644	0.667
	1998	2,538,000	77	18	48	3.034	0.709
	1999	2,809,000	76	12	38	2.706	0.427
General Aviation	1994	22,235,000	1994	403	725	8.968	1.812
	1995	24,906,000	2053	412	734	8.243	1.654
	1996	24,881,000	1908	360	632	7.669	1.447
	1997	25,464,000	1853	353	643	7.277	1.386
	1998	26,796,000	1909	365	623	7.124	1.362
	1999	27,080,000	1908	342	628	7.046	1.263

Data Source: NTSB

Rates are per 100,000 hours flown

**ACCIDENT RATES PER 100,000 FLIGHT HOURS BY SEGEMENT**  
**1994 through 1999**



Data Source: NTSB  
 Rates are per 100,000 hours flown

## **APPENDIX: HISTORICAL DATA**

**NEAR MIDAIR COLLISIONS  
OPERATIONAL ERRORS/DEVIATIONS  
PILOT DEVIATIONS  
ACCIDENT DATA**

**PILOT REPORTED NEAR MIDAIR COLLISIONS**  
**1959 through 1993**

YEAR	TOTAL	SOURCE	YEAR	TOTAL	SOURCE
1959	1,112	1	1977	384	6
1960	470	1	1978	504	6
1961	516	1	1979	540	6
1962	549	1	1980	568	6
1963	626	1	1981	394	6
1964	536	2	1982	311	6
1965	559	2	1983	475	6
1966 - 67	N/A	N/A	1984	589	6
1968	2,230	3	1985	758	6
1969	1,444	4	1986	840	6
1970	1,456	4	1987	1,058	6
1971	1,350	4	1988	710	6
1972	231	5	1989	550	6
1973	275	6	1990	454	6
1974	285	6	1991	348	6
1975	269	6	1992	311	6
1976	373	6	1993	254	6

N/A - Not Available

NOTE: A special program was in effect between 1968 and 1971 which granted immunity to those parties involved in a NMAC if the event was reported to the FAA.

SOURCES: (1) Near Midair Collision report for calendar year 1993, FAA FS-27, March 1964.  
 (2) Statistical analysis of the relationship between aircraft Midair Collisions, aircraft near misses, and ATC system errors, FAA, Office of Policy Development, August 1966.  
 (3) Near Midair Collision report of 1968, FAA, Air Traffic and Flight Standards Technical Report, July 1969  
 (4) Fact Sheet, FAA, APA, December 1975  
 (5) Fact Sheet, FAA, APA, October 1976.  
 (6) FAA Near Midair Collision Database.

**OPERATIONAL ERRORS**  
**1980 through 1993**

TYPE OF OPERATIONAL ERRORS				
<u>YEAR</u>	<u>TERMINAL</u>	<u>ENROUTE</u>	<u>FSS</u>	<u>TOTAL</u>
1980	356	230	0	586
1981	289	168	0	457
1982	188	164	1	353
1983	292	429	2	723
1984	388	1497	3	1888
1985	412	989	2	1403
1986	400	802	0	1202
1987	409	789	1	1199
1988	379	655	2	1036
1989	356	553	3	912
1990	379	488	1	868
1991	325	370	1	696
1992	350	386	1	737
1993	363	451	0	814

**OPERATIONAL DEVIATIONS**  
**1982 through 1993**

TYPE OF OPERATIONAL DEVIATIONS				
<u>YEAR</u>	<u>TERMINAL</u>	<u>ENROUTE</u>	<u>FSS</u>	<u>TOTAL</u>
1982	41	25	0	66
1983	83	42	1	126
1984	55	63	0	118
1985	80	55	4	139
1986	75	72	0	147
1987	114	101	2	217
1988	107	114	1	222
1989	145	208	1	345
1990	112	99	1	212
1991	108	98	1	207
1992	110	99	1	210
1993	108	120	2	230

**PILOT DEVIATIONS**  
**1985 through 1993**

<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>
1814	2565	3625	2955	2478	2343	1797	1673	1451

**VEHICLE PEDESTRIAN DEVIATIONS**  
**1988 through 1993**

<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>
110	621	598	423	365	344

**TOTAL SYSTEM ACCIDENT DATA BY SEGMENT**  
**1982 through 1993**

SEGMENT	YEAR	HOURS FLOWN	ACCIDENTS			ACCIDENT RATES	
			TOTAL	FATAL	FATALITIES	TOTAL	FATAL
TOTAL SYSTEM	1982	40,988,073	3,409	632	1,508	8.32	1.54
	1983	39,860,707	3,259	589	1,157	8.18	1.48
	1984	41,852,886	3,201	576	1,146	7.65	1.38
	1985	41,339,000	2,935	547	1,594	7.10	1.32
	1986	41,463,690	2,738	510	1,044	6.60	1.23
	1987	42,220,541	2,658	492	1,194	6.30	1.17
	1988	43,311,237	2,534	493	1,165	5.85	1.14
	1989	41,315,098	2,230	487	1,249	5.40	1.18
	1990	39,536,876	2,186	437	833	5.53	1.11
	1991	16,313,191	137	40	239	0.84	0.25
	1992	16,662,064	117	35	122	0.70	0.21
	1993	17,003,553	108	24	67	0.64	0.14
LARGE AIR CARRIERS	1982	7,040,325	18	5	235	0.24	0.06
	1983	7,298,799	23	4	15	0.32	0.06
	1984	8,165,124	16	1	4	0.20	0.01
	1985	8,709,894	21	7	526	0.24	0.08
	1986	9,976,104	24	3	8	0.23	0.02
	1987	10,645,192	34	5	232	0.31	0.04
	1988	11,140,548	29	3	285	0.25	0.02
	1989	11,274,543	28	11	278	0.25	0.10
	1990	12,150,116	24	6	39	0.20	0.05
	1991	11,780,610	26	4	62	0.22	0.03
	1992	12,359,715	18	4	33	0.15	0.03
	1993	12,706,206	23	1	1	0.18	0.01
COMMUTER	1982	1,299,748	26	5	14	2.00	0.39
	1983	1,510,908	17	2	11	1.13	0.13
	1984	1,745,762	22	7	48	1.26	0.40
	1985	1,737,106	21	7	37	1.21	0.40
	1986	1,724,586	15	2	4	0.87	0.12
	1987	1,946,349	33	10	59	1.70	0.51
	1988	2,092,689	19	2	21	0.91	0.10
	1989	2,240,555	19	5	31	0.85	0.22
	1990	2,341,760	16	4	7	0.68	0.17
	1991	2,291,581	23	8	99	1.00	0.35
	1992	2,335,349	23	7	21	0.94	0.30
	1993	2,638,347	16	4	24	0.61	0.15
AIR TAXI	1982	3,008,000	132	31	72	4.39	1.03
	1983	2,378,000	141	27	62	5.93	1.14
	1984	2,843,000	146	23	52	5.14	0.81
	1985	2,570,000	154	35	76	5.99	1.36
	1986	2,690,000	117	31	65	4.35	1.15
	1987	2,657,000	96	30	65	3.61	1.13
	1988	2,632,000	101	28	59	3.84	1.06
	1989	3,020,000	110	25	83	3.64	0.83
	1990	2,249,000	107	29	51	4.76	1.29
	1991	2,241,000	88	28	78	3.93	1.25
	1992	1,967,000	76	24	68	3.86	1.22
	1993	1,659,000	69	19	42	4.16	1.15
GENERAL AVIATION	1982	29,640,000	3,233	591	1,187	10.91	1.99
	1983	28,673,000	3,078	556	1,069	10.73	1.94
	1984	29,099,000	3,017	545	1,042	10.36	1.87
	1985	28,322,000	2,739	498	955	9.66	1.75
	1986	27,073,000	2,582	474	967	9.54	1.75
	1987	26,972,000	2,495	447	838	9.25	1.65
	1988	27,446,000	2,385	460	800	8.69	1.68
	1989	27,920,000	2,232	431	768	7.98	1.53
	1990	28,510,000	2,215	443	767	7.77	1.55
	1991	27,678,000	2,175	433	786	7.85	1.56
	1992	24,780,000	2,073	446	857	8.36	1.80
	1993	22,796,000	2,039	398	736	8.94	1.74

Data Source: NTSB

Rates are Per 100,000 Hours Flown

Suicide/Sabotage cases are included in "Accidents" and Fatalities but not in "Accident Rates"

## **ACRONYM/ABBREVIATION LIST**

## ***ACRONYM/ABBREVIATION LIST***

<i>A/C</i>	<i>Air Carrier</i>
<i>AAL</i>	<i>Alaskan Region</i>
<i>ACE</i>	<i>Central Region</i>
<i>ACT</i>	<i>Approach Control Tower</i>
<i>AEA</i>	<i>Eastern Region</i>
<i>AGL</i>	<i>Great Lakes Region</i>
<i>ANE</i>	<i>New England Region</i>
<i>ANM</i>	<i>Northwest Mountain Region</i>
<i>APP</i>	<i>Approach</i>
<i>ARSA</i>	<i>Airport Radar Service Area</i>
<i>ARTCC</i>	<i>Air Route Traffic Control Center</i>
<i>ASO</i>	<i>Southern Region</i>
<i>ASW</i>	<i>Southwest Region</i>
<i>ATA</i>	<i>Airport Traffic Area</i>
<i>ATC</i>	<i>Air Traffic Control</i>
<i>ATCT</i>	<i>Airport Traffic Control Tower</i>
<i>AWP</i>	<i>Western Pacific Region</i>
<i>CZ</i>	<i>Control Zone</i>
<i>FSS</i>	<i>Flight Service Station</i>
<i>IFR</i>	<i>Instrument Flight Rules</i>
<i>N/A</i>	<i>Not Applicable or Not Available</i>
<i>NMAC</i>	<i>Near Midair-Collision</i>
<i>NONSCH</i>	<i>Nonscheduled</i>
<i>NTSB</i>	<i>National Transportation Safety Board</i>
<i>OCA</i>	<i>Other Controlled Airspace</i>
<i>OD</i>	<i>Operational Deviation</i>
<i>OE</i>	<i>Operational Error</i>
<i>OP</i>	<i>Operational</i>
<i>PCA</i>	<i>Positive Control Area</i>
<i>PD</i>	<i>Pilot Deviation</i>
<i>PROCS</i>	<i>Procedures</i>
<i>RI</i>	<i>Runway Incursion</i>
<i>SCH</i>	<i>Scheduled</i>
<i>SUA</i>	<i>Special Use Airspace</i>
<i>TCA</i>	<i>Terminal Control Area</i>
<i>TRACON</i>	<i>Terminal Radar Approach Control</i>
<i>VFR</i>	<i>Visual Flight Rules</i>
<i>VPD</i>	<i>Vehicle/Pedestrian Deviation</i>

## **GLOSSARY**

## **GLOSSARY**

### ***Accident***

*An "aircraft accident" is defined by the National Transportation Safety Board as "an occurrence associated with the operation of an aircraft that takes place between the time any person boards the aircraft with the intention of flight and all such persons have disembarked, and in which any person suffers death or serious injury, or in which the aircraft receives substantial damage."*

### ***Air Carrier***

*Any air operator operating under FAR Parts 121, 127, or 135.*

### ***Air Route Traffic Control Center (ARTCC)***

*A facility established to provide air traffic control service to aircraft operating on an IFR flight plan within controlled airspace and principally during the enroute phase of flight. When equipment capabilities and controller workload permit, certain advisory/assistance service may be provided to VFR aircraft.*

### ***Air Taxi***

*A class of air carriers, operating pursuant to FAR Part 135, engaged in the nonscheduled air transportation of persons, property, or mail for compensation or hire in aircraft with 30 or less passenger seats and a payload capacity of 7,500 pounds or less. They do not hold certificates of public convenience and necessity and do not hold specific route authority.*

### ***Airport Operations***

*The number of arrivals and departures from the airport at which the airport traffic control tower is located. There are two types of operations: local and itinerant.*

### ***Commuter***

*An FAR Part 135 operator who carries passengers on at least five round trips per week or at least one route between two or more points according to its published flight schedule that specifies the times, days of the week, and places between which those flights are performed.*

### ***General Aviation***

*That portion of civil aviation which encompasses all facets of aviation except air carriers.*

***Large Air Carrier***

*Scheduled and nonscheduled aircraft operating under FAR Parts 121 or 127.  
(Note: Part 129 operations [foreign air carriers] are not included in the NTSB  
accident database, nor are hour and departure data available for these air  
carriers.)*

***Near Midair Collision***

*An incident associated with the operation of an aircraft in which a possibility of collision occurs as a result of proximity of less than 500 feet to another aircraft, or a report is received from a pilot or flight crew member stating that a collision hazard existed between two or more aircraft.*

**Degree of Hazard**

*Critical: A situation in which collision avoidance was due to chance rather than an act on the part of the pilot. Less than 100 feet of aircraft separation would be considered critical.*

*Potential: An incident which would probably have resulted in a collision if no action had been taken by either pilot. Closest proximity of less than 500 feet would usually be required in this case.*

*No Hazard: A situation in which direction and altitude would have made a midair collision improbable regardless of evasive action taken.*

***Open "Near Midair Collisions"***

*Final investigation still underway.*

***Operational Deviation***

*An occurrence where applicable separation minima as referenced in the operational error definition below were maintained but (1) less than the applicable separation minima existed between an aircraft and protected airspace without prior approval (2) an aircraft penetrated airspace that was delegated to another position of operation or another facility without prior coordination and approval, (3) an aircraft penetrated airspace that was delegated to another position of operation or another facility at an altitude or route contrary to the altitude or route requested and approved in direct coordination or as specified in a Letter of Agreement, pre-coordination or internal procedure, or (4) an aircraft, vehicle, equipment, or personnel encroached upon a landing area that was delegated to another position of operation without prior coordination and approval.*

## ***Operational Error***

*An occurrence attributable to an element of the air traffic control system in which:*

- 1. Less than the applicable separation minima results between two or more aircraft, or between an aircraft and terrain or obstacles (e.g., operations below minimum vectoring altitude (MVA); equipment/personnel on runways), as required by FAA Order 7110.65 or other national directive; or*
- 2. An aircraft lands or departs on a runway closed to aircraft operations after receiving air traffic authorization.*

## ***Pilot Deviation***

*The actions of a pilot that result in the violation of a Federal Aviation Regulation or a North American Aerospace Defense Command (NORAD) Air Defense Identification Zone (ADIZ) tolerance.*

### ***Pilot Deviation Air Deviation Types***

*ATC Altitude Clearance Deviation  
ATC Course Clearance Deviation  
Airspeed Violation  
Flying VFR When IFR Required  
Pilot Unqualified for Aircraft or Conditions  
Required Aircraft Equipment Not Operating  
Careless or Reckless Aircraft Operating  
Unauthorized Low Level Flying  
Missed Compulsory Reporting Point  
Noncompliance with Other Regulations*

### ***Pilot Deviation Airspace Violation Types***

*Class A (formerly Positive Control Area (PCA))  
Class B (formerly Terminal Control Area (TCA))  
Class C (formerly Airport Radar Service Area (ARSA))  
Class D (formerly Airport Traffic Area (ATA) and Control Zone (CZ))  
Class E (formerly General Controlled Airspace)  
Class G (formerly Uncontrolled Airspace)  
Special Use Airspace  
Unknown  
Other*

**Pilot Deviation Surface Deviation Types**

*Takeoff Without Clearance*

*Takeoff on Wrong Runway or Taxiway*

*Landing Without Clearance*

*Landing or Takeoff Below Weather Minimums*

*Landing on Wrong Runway, Airport, or Taxiway*

*Entered Taxiway or Runway Without Clearance*

*Careless or Reckless Aircraft Operation*

*Other*

**Runway Incursion**

*Any occurrence at an airport involving an aircraft, vehicle, person, or object on the ground that creates a collision hazard or results in loss of separation with an aircraft taking off, intending to take off, landing, or intending to land.*

*Please see next page for definition details.*

**Surface Incident**

*Any event where unauthorized or unapproved movement occurs within the movement area or an occurrence in the movement area associated with the operation of an aircraft that affects or could affect the safety of flight. Surface incidents result from pilot deviations, operational errors, vehicle pedestrian deviations, or operational deviations*

**Terminal Radar Approach Control (TRACON)**

*A Federal Aviation Administration (FAA) air traffic control facility using radar and air/ground communications to provide approach control services to aircraft arriving, departing, or transiting the airspace controlled by the facility. Service May be provided to both civil and military airports. A TRACON is similar to a RAPCON (USAF), a RATCF (USN), and an ARAC (Army).*

**Vehicle/Pedestrian Deviation**

*An entry or movement on an airport movement area by a vehicle operator or pedestrian that has not been authorized by air traffic control (includes aircraft operated by a non-pilot).*

## **RUNWAY INCURSION DEFINITIONS**

*This section includes two groups of definitions. The first group includes terms that have been subject to some confusion and misunderstandings in the past; the second set is comprised of definitions tailored specifically to runway incursion analysis.*

### **Runway Incursion (FAA Order 8020.11A, Ch.1 Par 5)**

*Any occurrence at an airport involving an aircraft, vehicle, person, or object on the ground that creates a collision hazard or results in a loss of separation\* with an aircraft taking off, intending to take off, landing, or intending to land.*

*\*A loss of separation means that aircraft involved in the incident were closer than allowed by air traffic requirements.*

*Runway Incursions are classified into four categories:*

**Pilot Deviations (PD)** - action of a pilot that results in violation of a Federal Aviation Regulation.

**Operational Errors (OE)** - an occurrence attributable to an element of the ATC system which results in:

- 1) less than the applicable separation minima between two or more aircraft, or between an aircraft and terrain or obstacles, as required by FAA Order 7110.65, Air Traffic Control, and supplemental instructions. Obstacles include vehicles/equipment/personnel on runways; or
- 2) an aircraft landing or departing on a runway closed to aircraft operations after receiving air traffic authorization.

### **Operational Deviations (OD) (FAA Order 7210.3)**

*Controlled occurrences where applicable separation minima, as referenced in the definition of operational error (see above) are maintained, but 1) less than the applicable separation minima existed between an aircraft and protected airspace without prior approval, or 2) an aircraft penetrated airspace that was delegated to another position of operation or another facility without prior coordination and approval.*

**Vehicle/Pedestrian Deviations (VPD)** - vehicle or pedestrian incursions resulting from a vehicle operator, non-pilot operator of an aircraft, or pedestrian who deviates onto the movement area (including the runway) without ATC authorization.

*It should be noted that not all events that fall into these categories are counted as runway incursions. While these four categories all represent surface incidents, they are considered runway incursions only when a collision hazard or loss of separation occurs.*